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THE PRONUNCIATION OF GREEK AND LATIN

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THE PRONUNCIATION OF GREEK AND LATIN

THE SOUNDS AND ACCENTS

By

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PREFACE

In writing on Greek and Latin pronunciation I have had two objects in view: to gather and evaluate the evidence which has been discovered since the appearance of the handbooks by Blass, Seelmann, and Lindsay, and to put at the disposal of students and teachers a clear statement of the basis of our knowledge of the pronunciation of the classical languages.

The former of these objects did not require the discussion of theories inconsistent with those which the evidence, as I understand it, compelled me to adopt, and such a discussion would have interfered with the second object. Most of the rejected theories have been refuted in print, and the references in the footnotes will guide the curious to the appropriate literature. In many cases the evidence upon which divergent theories have been based is given in connection with the interpretation which seems to me to be correct.

For similar reasons I have omitted much that has been advanced as evidence but which seems to me not to be significant. Since the loss of Latin *v* between like vowels is not a valid argument for the semivocalic character of the sound, the matter is nowhere mentioned, although it has been brought into the discussion by some.

Evidence which is significant both for Greek and for Latin has, as far as possible, been given in detail in the treatment of the Latin sounds, on the assumption that the Latin part of the book would be consulted more frequently than the Greek. In the chapter on the Greek

sounds such evidence is stated summarily, and a cross reference to the fuller treatment is added. Consequently the chapter on the Latin sounds immediately follows the introductory chapter, so that one who works through the book consecutively need not turn to later pages in order to understand what he is at the moment reading. The chapters on accent, however, are placed in proper chronological order; for it would be quite impossible to understand the evidence on the Latin accent without some acquaintance with the Greek accent.

All references to Greek and Latin inscriptions have been verified except two or three to collections to which I have no access. My authority for the latter is noted, thus, "Mai, *Inscr. Chr.* 423 (according to Schuchardt, I, 26)." References to papyri have been verified as far as possible, but two or three references are given on Mayser's authority without note of that fact. The process of verification has eliminated several forms which have been current in grammatical literature, but which owe their existence to false readings.

My effort has been to avoid technical terms and symbols as far as possible. Those who feel the need of further information about the phonetic terms employed can find all that is needed to understand this book in briefest compass in Niedermann, *Outlines of Latin Phonetics*, edited by Strong and Stewart (London, 1910), pages 3–7, or in my *Linguistic Change* (Chicago, 1917), pages 14–23. For a brief but clear account of phonetics the reader is referred to Paul Passy, *Petite phonétique comparée* (2d ed.; Leipzig, 1912). The few phonetic transcriptions in the following pages follow the system used by Passy.

I am indebted to all the authors mentioned in the bibliographical footnotes, but especially to the three men named above. The translation of passages from Dionysius of Halicarnassus, *De compositione verborum*, has been borrowed from the edition by W. Rhys Roberts, Cambridge, 1901. I have also taken several passages from the Bohn translation of Quintilian, but these have been considerably modified. The other translations are my own.

Warmest thanks are due to several colleagues. Professors Raymond Weeks and Clarence E. Parmenter have discussed with me several phonetic problems. Professors John Gerig and Carl D. Buck have read and criticized most of the manuscript, and Professors Roland G. Kent and Charles Knapp have read the proof. All of them have made valuable suggestions.

E. H. STURTEVANT

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ABBREVIATIONS

AJP = *The American Journal of Philology*.

ALL = *Archiv für lateinische Lexicographie und Grammatik*.

Ath. Mitth. = *Mittheilungen des deutschen archäologischen Instituts, Athenische Abteilung*.

BCH = *Bulletin de correspondance hellénique*.

Blass = Blass, *Ueber die Aussprache des Griechischen*, third edition, Berlin, 1888.

Brugmann-Thumb = Brugmann, *Griechische Grammatik*, fourth edition, by Thumb, Munich, 1913.

Buck = Buck, *Introduction to the Study of the Greek Dialects*, Boston, 1910.

Byz. Z. = *Byzantinische Zeitschrift*.

CGL = *Corpus Glossariorum Latinorum*.

CIG = *Corpus Inscriptionum Graecarum*.

CIL = *Corpus Inscriptionum Latinarum*.

CP = *Classical Philology*.

CQ = *Classical Quarterly*.

CR = *Classical Review*.

Dittenberger, *Sylloge*[2] = Dittenberger, *Sylloge Inscriptionum Graecarum*, second edition, Leipzig, 1898–1901.

Edict. Diocl. = *Edictum Diocletiani et Collegarum de Pretiis Rerum Venalium*, *CIL*, III, Suppl. iii, pp. 1909–53.

Eph. Arch. = Ἐφημερὶς ἀρχαιολογική.

Eph. Ep. = *Ephemeris Epigraphica, Corporis Inscriptionum Latinarum Supplementum*.

Gaertringen, *Priene* = Hiller von Gaertringen, *Inschriften von Priene*, Berlin, 1906.

Gardner, *Indian Coins* = Gardner, *The Coins of the Greek and Scythic Kings of Bactria and India in the British Museum*, London, 1886.

GS = M. Terenti Varronis *De Lingua Latina quae Supersunt*, edited by Goetz and Schoell, Leipzig, 1910.

Hammer, *Roman. Lautwandlungen* = Hammer, *Die lokale Verbreitung frühester romanischer Lautwandlungen im alten Italien*, Halle, 1894.

Hatzidakis, *Ἀναγνώσματα* = Hatzidakis, *Ἀκαδημεικὰ ἀναγνώσματα εἰς τὴν Ἑλληνικὴν, Λατινικὴν, καὶ μικρὸν εἰς τὴν Ἰνδικὴν γραμματικήν*, 2 vols., Athens, 1902.

IF = *Indogermanische Forschungen.*

IG = *Inscriptiones Graecae.*

IGRRP = *Inscriptiones Graecae ad Res Romanas Pertinentes.*

J. of Ph. = *Journal of Philology.*

K = Keil, *Grammatici Latini*, 7 vols., Leipzig, 1857–88.

Krauss, *Lehnwörter* = Krauss, *Griechische und lateinische Lehnwörter im Talmud, Midrasch, und Targum*, 2 vols., Berlin, 1898–99.

Kretschmer, *Vaseninschriften* = Kretschmer, *Die griechischen Vaseninschriften ihrer Sprache nach untersucht*, Gütersloh, 1894.

KZ = *Zeitschrift für vergleichende Sprachforschung.*

Lindsay = Lindsay, *The Latin Language*, Oxford, 1894.

Mayser = Mayser, *Grammatik der griechischen Papyri aus der Ptolemäerzeit*, Leipzig, 1906.

Meisterhans-Schwyzer = Meisterhans, *Grammatik der attischen Inschriften*, third edition, by Schwyzer, Berlin, 1900.

MSL = *Mémoires de la Société de Linguistique.*

PAPA = *Proceedings of the American Philological Association.*

P. Berl. = *Ägyptische Urkunden aus den königlichen Museen zu Berlin, griechische Urkunden*, 4 vols., Berlin, 1895–1912.

P. Eud. = *Eudoxi Ars Astronomica, qualis in charta Aegyptiaca superest*, ed. by Blass, Kiel, 1887.

P. Grenf. I = Grenfell, *An Alexandrian Erotic Fragment and Other Greek Papyri Chiefly Ptolemaic*, Oxford, 1896.

P. Grenf. II = Grenfell and Hunt, *New Classical Fragments and Other Greek and Latin Papyri*, Oxford, 1897.

P. Leid. = Leemans, *Papyri Graeci Musei Antiquarii Publici Lugduni-Batavi*, Tom. I, 1843.

P. Lond. = Kenyon, *Greek Papyri in the British Museum*, 5 vols., London, 1893–1917 (Vol. V by Bell).

P. Oxy. = Grenfell, Hunt, etc., *The Oxyrhynchos Papyri*, 12 vols., London, 1898–1916.

P. Par. = *Notices et extraits des manuscrits de la bibliothèque impériale*, XVIII, 2, Paris, 1865.

P. Petr. = Mahaffy, *The Flinders Petrie Papyri with Transcriptions, Commentaries*, etc., 2 parts and appendix, Dublin, 1891–94.

P. Petr.[2] = Mahaffy and Smyly, *The Flinders Petrie Papyri with Transcriptions, Commentaries, and Index*, Dublin, 1905.

P. Rev. L. = Grenfell, *Revenue Laws of Ptolemy Philadelphus*, Oxford, 1896.

P. Tebt. = Grenfell, Hunt, etc., *The Tebtunis Papyri*, 2 parts, London, 1902–7.

P. Weil = Weil, *Un papyrus inédit de la bibliothèque de M. Ambroise Firmin-Didot, Monuments grecs publiés par l'association pour l'encouragement des études grecques en France*, 1879, 8, pp. 1–35.

Phil. = *Philologus, Zeitschrift für das klassische Altertum.*

Rh.M. = *Rheinisches Museum für Philologie.*

Rom. Forsch. = *Romanische Forschungen.*

Rossi, *ICUR* = Rossi, *Inscriptiones Christianae Urbis Romae Septimo Saeculo Antiquiores*, Vol. 1, Rome, 1861.

Schuchardt = Schuchardt, *Der Vokalismus des Vulgärlateins*, 3 vols., Leipzig, 1866–68.

Seelmann = Seelmann, *Die Aussprache des Latein nach physiologisch-historischen Grundsätzen*, Heilbronn, 1885.

SGDI = *Sammlung der griechischen Dialektinschriften.*

Sommer = Sommer, *Handbuch der lateinischen Laut- und Formenlehre*, second and third edition, Heidelberg, 1914.

TAPA = *Transactions of the American Philological Association.*

TPhS = *Transactions of the Philological Society.*

UR = Dionysii Halicarnasei *Opuscula*, edited by Usener and Radermacher, Vol. II, Fasc. 1, Leipzig, 1904.

Vendryes = Vendryes, *Recherches sur l'histoire et les effets de l'intensité initiale en Latin*, Paris, 1902.

Walde = Walde, *Lateinisches etymologisches Wörterbuch*, second edition, Heidelberg, 1910.

CHAPTER I

THE NATURE AND VALUE OF THE EVIDENCE

The original clue to the speech-sounds of Greek and Latin—the starting-point of our knowledge of the subject—is tradition. Both languages have been in use constantly from ancient times to the present, and each generation of scholars has passed on to the next, without intentional change (except in modern times), the pronunciation which it received from its predecessors. In spite of numerous divergences, the tradition of scholars in all parts of the world is harmonious in regard to a majority of the features of Greek and Latin pronunciation. For example, Latin *s* and Greek *σ* are traditionally pronounced as sibilants everywhere; and Greek *κ* and Latin *c* are voiceless sounds in the speech of all scholars. This tradition of the schools, then, forms the historical basis of our knowledge; but it requires correction at numerous points.

Yet the very fact that the great Roman orator is called [sìsɹow] in English Latin, [sísero] in French Latin, and [tʃitʃero] in Italian Latin proves that the tradition of the schools is fallible. A moment's reflection will show, moreover, that these three pronunciations differ from one another according to certain differences in the pronunciation of the several vernaculars. English Latin has a fricative instead of a trilled *r* and a diphthong in place of *ó*, two striking features of English as opposed to French and Italian articulation. Italian Latin differs from French Latin in the pronunciation of *c* before *e*

and *i*, precisely as Italian differs from French. In fact the pronunciation of Latin has in each country tended to change along with changes in vernacular pronunciation, except as the former has been held back by the influence of the unchanging orthography; for in a dead language pronunciation according to spelling is the rule, not the exception.

In order to correct the tradition of the schools we turn first to the independent tradition of the great public, which is found in the modern Greek dialects and the Romance languages. If we discover that scholarly tradition and all the Romance languages are in harmony on any particular point the case is very strong. This is true as to the quality of Latin *ī*, except for the tradition of English scholars, which makes the sound a diphthong in such words as *finis*, formerly pronounced [faenis]. The exception, however, is of no importance, since in many English words the vowel-sound of *fine* [ae] demonstrably comes from earlier [i:].

Even if the popular tradition cannot be accepted at its face value, it is often instructive. Each of the Romance languages, except Sardinian, shows the same vowel for Latin accented *ē* as for Latin accented *ĭ* (p. 16). There is abundant evidence that the two sounds were distinct in antiquity; but the popular tradition is evidence that *ē* approached an *i*-sound and *ĭ* approached an *e*-sound; that is, *ē* was a close *e*, and *ĭ* was an open *i*.

Loan-words and transcriptions with a foreign alphabet frequently make available for our purposes the traditional pronunciation of other languages than the one we are studying. Countless Graeco-Roman loan-words show the general equivalence of *α* and *a*; con-

sequently the Greek tradition is available for Latin *a* and the Latin tradition for Greek *α*. Similar reasoning puts at our disposal the traditional pronunciation of Armenian, Hebrew, Sanskrit, Coptic, Welsh, English, and other languages.

Usually, however, the sounds of two languages differ rather widely; and such a difference is likely to be reflected in the form of loan-words. Latin *ĭ* was frequently—perhaps at first regularly—represented by Greek *ε*, as in *κομέτιον* and Καικέλιος, and Greek *ε* appears in Latin as *ĭ* in *piper*, *citrus*, etc. (pp. 18, 120). We conclude that Latin *ĭ* was relatively near to an *e*-sound (open *i*), while Greek *ε* was relatively near to an *i*-sound (close *e*).

While it is tradition which enables us to translate into sound the written documents of antiquity, ancient orthography itself frequently corrects or supplements the tradition. The substitution of Greek *φ* for *π* before a rough breathing (*ἐφ' ᾧ*, *ἀφ' οὗ*) is one of several proofs that Greek *φ* really denoted *π* followed by a puff of breath (p. 175).

A change in the approved orthography indicates a change in pronunciation, although the change in pronunciation may have occurred long before the change in orthography. The Latin diphthong *ai* began to be written *ae* about 200 B.C. (p. 48); early Latin *quoius*, *quoi*, *quom* became *cuius*, *cui*, *cum* (p. 64). Such changes of spelling occur only when the old spelling has ceased to be phonetic.

In case a change in pronunciation is not reflected in standard orthography, it is often betrayed by mistakes in spelling. The confusion of Latin *ae* and *e* in carelessly

written inscriptions of the first century A.D. indicates that *ae* had ceased to be a diphthong in the poorer quarters of Rome and Pompeii (p. 53).

The Greeks and Romans have left us a large body of grammatical literature, in which pronunciation is a frequent topic, and there are besides many chance references to pronunciation in the ancient literatures. A very few of the ancient descriptions of sounds are quite clear and satisfactory. Marius Victorinus says: "Putting the lower lip against the upper teeth, with the tongue bent back toward the top of the palate, we will pronounce *f* with a smooth breath." A modern phonetician could add little of real importance to this (p. 91).

As an example of unsatisfactory phonetic description, from which, nevertheless, something may be learned, we may take this from Varro: "One should know that the voice, like every body, has three dimensions, height, thickness, and length. We measure length by time and syllables; for it is important to distinguish how much time is taken in pronouncing words, and how many and what sort of syllables each word has. Accent marks the distinction of height, when a part of a word is lowered to the grave accent or raised to the acute. Thickness, however, depends upon the breath (whence the Greeks call breathings rough and smooth); for we make all words either thicker by pronouncing them with aspiration or thinner by pronouncing them without aspiration." Absurd as the comparison is, we learn that Latin accent was, in part, a matter of pitch (p. 215), and that by "long syllables" the Romans meant syllables that require a relatively long time to pronounce them.

Sometimes a grammatical discussion which is not primarily devoted to pronunciation yields valuable information. That Latin *eu* was a true diphthong appears from Agroecius' semantic distinctions between *eo*, *eho*, *heu*, and *eu;* he evidently regards them as homonyms (p. 61).

Catullus' famous epigram on Arrius proves that *h* initial and *h* after mutes were similar, and that in both positions the sound was used by the educated, neglected by the uneducated, and incorrectly used by the half-educated (p. 71).

The direct testimony of the ancient writers has two serious defects. There were no trained phoneticians in antiquity, and consequently there was no altogether trustworthy observation and scarcely any exact description of speech-sounds. Only an untrained observer would have failed to detect, or an unscientific writer to record, the element of stress in the Latin accent (pp. 206 ff.). The difference in articulation between Latin *d* and *t*, which Terentianus Maurus and Marius Victorinus imply, must be illusory (p. 109). Furthermore, the professional grammarians were so fond of constructing systems that the requirements of a theory were likely to blind them to the data of observation. Varro allowed theoretic considerations (combined with Greek tradition) to convince him that *h* did not represent a speech-sound (pp. 5, 102).

Ancient, even more than modern, scholars were prone to repeat the statements of their predecessors without sufficient criticism. Thus many a description of sound was reproduced in the grammars and taught in the schools long after it had ceased to correspond with

actual usage. The Greek grammarians continued to ascribe breath to the rough breathing after the total loss of the sound, much as contemporary French grammarians speak of "*h* aspirée." The same fault sometimes led the Roman grammarians falsely to ascribe to Latin features which their Greek predecessors had observed in the pronunciation of Greek. Thus Priscian tells us that Latin *b*, *d*, and *g* had more aspiration than *p*, *t*, and *c* (p. 93).

It follows that statements which are inconsistent with grammatical tradition are in general more reliable than those which may be purely imitative. We cannot doubt Sextus Empiricus' assertion that the sound of *αι* was not diphthongal (p. 142); and the description by Roman grammarians of Latin *ō* as a close *o* gains in credibility from the fact that Greek *ω* was an open *o* (p. 33).

The testimony of the ancients is usually of value in proportion as the phenomena reported are concrete and easy to observe. No scholar would doubt that *ss* after long vowels and diphthongs was simplified, at least in spelling, between the time of Vergil and Quintilian, even if we had no evidence but the following:

> Quintilian i. 7. 20: Quid quod Ciceronis temporibus paulumque infra, fere quotiens *s* littera media vocalium longarum vel subiecta longis esset, geminabatur, ut *caussae*, *cassus*, *divissiones;* quomodo et ipsum et Vergilium quoque scripsisse manus eorum docent.[1]

Of equal value is Cicero's testimony in regard to the aspiration of mutes in Latin (p. 72). On the other hand, the various attempts to give acoustic descriptions of

[1] "Besides, in Cicero's time and a little later, when *s* stood between or after long vowels it was usually doubled, e.g., *caussae*, *cassus*, *divissiones;* that Cicero himself and Vergil also wrote this way, their autograph manuscripts show."

speech-sounds can scarcely be understood, and they probably meant very little even to their authors; such terms as *pinguis* and *tenuis*, as applied to Latin vowels, probably served no higher purpose than to conceal ignorance.

Certain of the ancient writers are very much better witnesses than others. In general we should prefer those who had high ability, good education, and an interest in language, but no motive for reducing language to a system. Probably Cicero, Quintilian, and Dionysius of Halicarnassus are our best witnesses, while in the second rank may be placed Aristotle, Dionysius of Thrace, and Varro.

Ancient etymologies are sometimes instructive although almost always foolish. When Priscian derived *caelebs* from *caelestium vitam ducens*, he must have pronounced *b* and *v* alike (p. 43). Plato derives ἡμέρα from ἵμερος, and says that η was substituted for ι because it was a more impressive sound; it follows that η and ι differed in sound (p. 126).

Occasionally cries of animals are represented by speech-sounds. Menaechmus' wife repeats her charge of theft in these words: "Tu, tu istic, inquam." Then the slave breaks in: "Shall I bring you an owl to keep right on saying 'tu, tu' for you?" Unless owls have changed their language, this fixes the sound of Latin long *u* within rather narrow limits (p. 33). The Greek comic poets spelled the cry of a sheep βῆ βῆ. This cannot be read in the modern Greek fashion [vi: vi:], nor yet with a close *e*-sound [be: be:]; it might be read with the vowel either of English *far* or of English *care* (p. 123).

Verse often furnishes evidence concerning pronunciation, particularly in regard to syllabification

and quantity. Latin versification shows that in *nunciam* consonantal *i* became a vowel, while in Ennius' *insidiantes* and Vergil's *fluviorum* vocalic *i* became a consonant. These and similar forms are evidence that the two sounds were fairly close together; that is, consonantal *i* was a semivowel rather than a spirant (p. 44). A final vowel before *huic* is elided in verse; therefore the digraph *ui* does not begin with a consonant; the Romans certainly did not say [hwi: k] (p. 65). In Greek verse *αυ* and *ευ* are scanned long even before vowels; therefore we cannot read them in the modern Greek fashion as [αv, εv] (p. 148).

Our scanty knowledge of Greek music has contributed one or two scraps of evidence in regard to the nature of the Greek accent. In the Delphic hymns that have been recovered, an unaccented syllable is usually not sung on a note higher than the accented syllable of the same word. We infer that Greek accent was a matter of pitch rather than of stress. Since the rule applies to the final syllable of oxytones within a phrase, we infer that the "grave" accent of such syllables represented a pitch higher than that of the other syllables of the word (pp. 198, 201).

There are several ways, aside from orthography, in which we may learn that two Greek or Latin words contained similar or identical sounds, although none of them have contributed so much to our knowledge as have the rhymes of Chaucer and Shakespeare. In the case of English rhyme we know just where the corresponding sounds should appear, and we know approximately what degree of similarity is necessary. Ancient alliterations and puns were bound by no such rules; we are in

constant danger of finding alliteration where none was intended, and of overlooking the genuine cases on account of our faulty pronunciation, while no man can say just how much similarity of sound is required for a pun. Under these circumstances we should attach little weight to an alliteration unless it occurs several times, or to an isolated pun. For example, *volt* and *voltis* are several times in the early poets joined with words like *vos*, *voster*, and *voluptas*, which certainly contained initial *vo;* this is evidence that *volt* had not yet become *vult* (p. 36). On the other hand Plautus' pun on *ignem magnum* and *inhumanum*, since it stands alone, is at best a very weak argument that we should pronounce *g* before *n* as a velar nasal (p. 90). It sometimes happens that a scrap of evidence of this kind is canceled by similar evidence on the other side of the question. Plautus' pun on *socius* and *Sosia* (*Amph.* 383), which has been thought to indicate the pronunciation *sosius*, is neutralized by the pun on *arcem* and *arcam* (*Bacch.* 943).

A misunderstanding indicates similarity between two words or sentences, as when Marcus Crassus understood a street vendor's cry *Cauneas* "(Figs) from Caunus" as *cave ne eas*. *Cave,* then, cannot have contained a spirant (p. 40), and the vowel of *ne* must have been elided.

Occasionally we have other indications of identity or likeness of sound. Since the names of all other Greek letters contain the sound represented, it is safe to argue that *εἶ* and *οὖ*, the ancient names of *ε* and *ο*, were monophthongs of the same quality as *ε* and *ο* (pp. 128, 138).

Every language shows a certain amount of harmony in its system of sounds, and if one sound in a language

is modified in a given way all similar sounds in that language are likely to be modified in the same way. Thus all French vowels are articulated farther forward in the mouth than are the English vowels which most nearly resemble them. English *t* is formed with the tip of the tongue against the upper gum, and so are *d*, *n*, *l*, *s*, and *z*. In French all the corresponding sounds are formed with the tip of the tongue against the teeth. In English both long vowels of medium openness [eː, oː] have become diphthongs [ej, ow], and the close long vowels [iː, uː] have become diphthongs in the south of England [ij, uw].

Having discovered, therefore, that Latin *ē* was closer than *ĕ*, we expect to find *ō* closer than *ŏ* (p. 30). Terentianus Maurus describes the position of *d* quite clearly as a dental; we therefore assume that *t* was a dental, although his description of that sound suggests rather an alveolar (p. 109). The fact that the Romans did not represent Greek φ by *f* shows that the two sounds differed. It is a probable inference that θ was not like English *th* nor χ like German *ch* (pp. 176 ff.). In Attic and Ionic of the fifth century B.C. the original diphthong ει and the lengthened ε (sometimes called in our grammars the improper diphthong) were identical in sound. Since the general tendency of the Greek language is toward the simplification of diphthongs, it is more likely that the diphthong had become a long close *e* than that the lengthened ε had become a diphthong (p. 123).

Of very great importance is the evidence furnished by phonetic change. Since only languages with a strong stress accent show a tendency to lose unaccented vowels, the extensive syncope of prehistoric Latin is

proof of a stress accent resting upon the only syllable of the word which never shows syncope, namely the first (pp. 207 f.). Upon the loss of a short vowel by syncope consonantal *u* became the second member of a diphthong in *fautor* : *faveo*, *lautus* : *lavo*, *naufragus* : *navis*, etc. It follows that consonantal *u* was a semi-vowel rather than a spirant (p. 39). The product of the contraction of two vowels must, if a monophthong, be identical in quality with one of the two, or else intermediate between them. Since, therefore, ε+ε=ει, ει must have the same quality as ε. The contraction of ε+α to η presents a more complicated problem; η cannot be equivalent to ᾱ, because these sounds are consistently distinguished in writing; it cannot be equivalent to long ε, because, as we have just shown, long ε is written ει, and ει is not confused with η in early inscriptions. Therefore η must be intermediate between ε and α; it must be a relatively open *e* and ε a relatively close *e*. It follows also that ει is a relatively close long *e* (pp. 121 f.).

In combining and interpreting the several items of evidence as to any sound, two principles must be constantly borne in mind. In the first place, most of the available evidence falls short of definite proof; it is therefore important to gather every scrap of evidence upon each point. In other words the force of our evidence is cumulative; while it might be possible to doubt the validity of each item taken separately, the inference from all the items combined is in many cases practically certain.

In the second place, we must never neglect chronology. The prehistoric phonetic change of *favitor* to

fautor is valid evidence on the nature of consonantal *u* in prehistoric Latin. Crassus' misunderstanding of *Cauneas* as *cave ne eas* throws light upon the pronunciation of the Ciceronian period; Priscian's connection of *caelibem* with *vitam* shows that *v* had become a spirant by the sixth century A.D. Even if we had no conflicting evidence from Plautus himself, it would be impossible to argue from the pun on *socius* and *Sosia* that *c* before *e* and *i* was already a sibilant; for, aside from possible alliterations in Ps.-Quintilian and Ausonius,[1] and an isolated form in an inscription of 392 A.D. (see p. 107), there is no other evidence of a sibilant element in *c* until the sixth century. Even then we have to assume an affricate [ts] or [tʃ]; the pure *s*, which we are asked to read in Plautus' *socius*, did not exist in such words even in the earliest French, and it has not yet developed in the Italian of the twentieth century.

The available evidence does not permit us to do more than determine the approximate pronunciation of Greek and Latin. We can show that Latin *ē* was closer than *ĕ*, and that Greek *η* was more open than *ε*; but we cannot tell how great the interval between the two members of each pair was. We have no means of knowing whether or not Latin *ĕ* and Greek *η* were identical in quality, or whether Latin *ĕ* was equivalent to English *e* in *men* or to French *è* or whether it differed from them both.

When, therefore, it is stated in the following pages that a given ancient sound was "similar to" a given modern sound, that phrase must not be interpreted as meaning "identical with."

[1] See Hey, *ALL*, XIV, 112; Becker, *ibid.*, XV, 146.

CHAPTER II

THE LATIN SOUNDS[1]

A

Our knowledge of the pronunciation of Latin *a* is based chiefly upon tradition, but the tradition is fortunately nearly unanimous. Everywhere, except in English-speaking countries, Latin *a* is pronounced as a vowel of extreme openness (about as in English *father*). The divergent English pronunciation of *a* (*a* in Latin *pater* = *a* in English *pate*, *a* in Latin *iam* = *a* in English *can*) resulted from changes in English pronunciation; the Latin vowel was originally pronounced in England in the same way as elsewhere, but when the native vowel was altered the Latin vowel was similarly modified. The tradition of the schools is confirmed by the popular tradition which is embodied in the Romance

[1] Edon, *Écriture et prononciation du Latin savant et du Latin populaire*, Paris, 1882; Seelmann, *Die Aussprache des Latein nach physiologisch-historischen Grundsätzen*, Heilbronn, 1885; Karsten, *De Uitspraak van het Latijn*, Amsterdam, 1893; Lindsay, *The Latin Language* (especially pp. 13–147), Oxford, 1894; Sommer, *Handbuch der lateinischen Laut- und Formenlehre*, second and third edition (especially pp. 55–83, 153–96), Heidelberg, 1914; Bennett, *The Latin Language* (especially pp. 4–31), Boston, 1907; Niedermann, *Outlines of Latin Phonetics*, edited by Strong and Stewart, London, 1910; Grandgent, *An Introduction to Vulgar Latin* (especially pp. 82–141), Boston, 1907.

Important collections of material are Eckinger, *Die Orthographie lateinischer Wörter in griechischen Inschriften*, Munich, 1893; Schuchardt, *Der Vokalismus des Vulgärlateins*, 3 vols., Leipzig, 1866–68; Gröber, *Vulgärlateinische Substrate romanischer Wörter*, *ALL*, I–VII; Hammer, *Die lokale Verbreitung frühester romanischer Lautwandlungen im alten Italien*, Halle, 1894; Claussen, *Die griechischen Wörter im Französischen*, *Rom. Forsch.*, XV, 774–883.

languages; with few exceptions they retain Latin *a* in inherited words as a vowel of extreme openness.

When Greek words were written in Latin letters, or vice versa, Greek α always corresponded to Latin *a*, as in Γαῖος, *Plato*, *comarchus*. The equivalence of the two sounds is implied by Lucilius ix. 352 ff. Marx:

> *Aa* primum longa, <*a*> brevis syllaba. Nos tamen unum
> hoc faciemus, et uno eodemque ut dicimus pacto
> scribemus *pacem*, *placide*, *Ianum*, *aridum*, *acetum*,
> Ἄρες, Ἆρες Graeci ut faciunt.[1]

Hence the traditional pronunciation of Greek α as an open vowel is evidence also for Latin *a*. Such loan-words as English *Lancaster*, *wall*, German *Wall*, *Kalk*, make available the tradition of the pronunciation of early Germanic *a*, which, in spite of the recent divergence of English, must have been a vowel of extreme openness.

Tradition is supported by the ancient descriptions of the sound.

Terentianus Maurus vi. 328. 111 ff. K.:

> *A* prima locum littera sic ab ore sumit:
> immunia rictu patulo tenere labra,
> linguamque necesse est ita pendulam reduci,
> ut nisus in illam valeat subire vocis,
> nec partibus ullis aliquos ferire dentes.[2]

[1] "To begin at the beginning, *aa* is a long and *a* a short syllable. Nevertheless we shall make them one; and in one and the same way, just as we speak, we shall write *pacem*, *placide*, *Ianum*, *aridum*, *acetum*, just as the Greeks write Ἄρες, Ἆρες." In the first line Lucilius distinguishes between long and short *a* (*aa* = *ā*, *a* = *ă*); but since there was no difference between them, except in quantity, he recommends that they be written alike.

[2] "*A*, the first letter, takes its position in the mouth as follows: with the mouth wide open one must hold the lips motionless, and draw back the loosely hanging tongue in such a way that the impulse of the voice can rise to it without striking the teeth anywhere."

Martianus Capella iii. 261:

> Namque *a* sub hiatu oris congruo solo spiritu memoramus.[1]

Terentianus' phrase, *linguam necesse est reduci*, must refer to a back vowel similar to the vowel of English *father* or of French *pas*.[2]

All Latin vowels except *a* yield different results in the Romance languages according to their quantity, thus indicating that corresponding long and short differed in quality. That no such difference is indicated in the case of *a* is in accord with Lucilius' statement that long and short *a* are pronounced "in one and the same way." This sound was similar to *a* in English *father*.

E and I[3]

Tradition is unanimous in making both *e* and *i* front vowels. Even the diphthongal pronunciation of *i* in *finis*, etc., which was formerly current in England and America, is evidence for an earlier pronunciation as a close front vowel; for since the sixteenth century English [i:] has become [ae].

The relative character of the several *e*- and *i*-sounds is most clearly shown by the Romance languages, where accented *e* and *i* develop differently according to their original quantity. The examples given in the table on page 16 are typical.

[1] "For we pronounce *a* with the mouth wide open in a way suitable only for this letter and aspiration."

[2] Latin inscriptions, however, confuse *a* and *o* scarcely more often than *a* and *e*.

[3] Müller, *De Litteris* i *et* u *Latinis*, Marburg, 1898, pp. 5 ff.; Parodi, *Studi Italiani di Filologia Classica*, I, 385 ff.; Meyer, *KZ*, XXX 337 ff.

	ĕ	*ē*	*ĭ*	*ī*
Latin......	mel	verum	pira	vivere
Italian.....	miele	vero	pera	vivere
Sicilian.....		viru	pira	......
French.....	miel	voire (vērē) plein (plēnus)	poire sein (sĭnus)	vivre
Spanish....	miel	vero	pera	vivir
Portuguese.	mel	crer (crēdere)	pera	viver
Sardinian...	mele	kreere (crēdere)	pira	raigina (radicīna)

In every Romance language, except the dialect of Logudoro in Sardinia, *ē* and *ĭ* have merged in a single sound (except for certain variations due to the influence of the surrounding sounds), while accented *ĕ* and *ī* have everywhere been kept distinct. It follows that the quality of Latin *ē* was nearer an *i*-sound than was that of *ĕ*, and that the quality of *ĭ* was nearer an *e*-sound than was that of *ī*. In other words *ē* was a closer vowel than *ĕ*, and *ī* than *ĭ*. The conclusion is confirmed by the fact that accented *ī* is in all Romance languages retained as an *i*-sound; it was so close a vowel as to avoid the tendency to develop into an *e*-sound.

If this inference is correct we may expect to find in Latin inscriptions a tendency to use the symbol *i* for *ē* and the symbol *e* for *ĭ;* and, since both the intermediate sounds have yielded *e* in most of the Romance languages, we may be inclined to expect more instances of the character *e* for *ĭ* than of the character *i* for *ē*. As a matter of fact, the most common misuse of the front vowels is the substitution of *e* for *ĭ*, as in the following:

adm*e*nistrator, *CIL* xii. 674
ads*e*dua, xii. 2193
an*e*ma, x. 3305; xii. 481
aur*e*ficinam, vii. 265
bassil*e*ca, iv. 1779
bas*e*lica, vii. 965
b*e*s. xii. 481
Br*e*t(t)annicus, iii. 711, 712, 6979

Cap*e*tolino, iii. 771
carm*e*na, iii. 12854
cast*e*tate, v. 1973
cond*e*dit, v. 7570
Cor*e*nthus, ix. 4569
depos*e*ta, x. 1378
f*e*de, xii. 2089, 2153
F*e*lippus, xiv. 1946
H*e*laritati, xiv. 615
in*e*mitabili, x. 7586 (*bis*)
*e*nnocens, xii. 2701
m*e*nus, viii. 9984, etc.
n*e*si, xii. 2426
off*e*cina, ix. 6078. 3
sat*e*s, xii. 2179
Sal*e*natoriae, xiv. 1571
s*e*tu = situs, viii. 9639
s*e*bi, v. 1648
tr*e*bibos, ix. 4204
ut*e*l*e*tas, xii. 2085
virg*e*nales, xii. 2384
v*e*rtute, v. 6244
dumv*e*r, -v*e*ratus, iii. 7484, etc.
univ*e*ra, x. 7196

The use of *e* for *ĭ* is common in late inscriptions in the third person singular active (*facet*, *vibet*), in the nominative and genitive singular of the third declension (*civitates*, ix. 1128), in the dative and ablative plural of the third declension (*victorebus*, ix. 5961), and in superlatives (*karessemo*, *merentessemo*, ii. 2997).[1]

There are also many instances of *i* for *ĕ* in inscriptions:

adol*i*scens, *CIL* xii. 1792, 2069
ag*i*s, x. 1692
Aur*i*lius, iii. 2010, etc.
d*i*buisti, xiv. 2841
d*i*dicavi, iii. 3474
duod*i*nos, x. 7777
ecl*i*sia,[2] xii. 2085, etc.
Epict*i*sis,[2] xiv. 1887
f*i*cit, ix. 3581, etc.
f*i*cerat, ix. 699
fec*i*runt, iii. 10743
F*i*l*i*x, iv. 4511
f*i*liciter, x. 6565
hav*i*te, v. 1636
innoc*i*s, x. 4510
m*i*nsis, xiv. 2710, etc.
Necl*i*cta, xii. 955
n*i*ve, i. 199 = v. 7749 (*passim*)
posu*i*runt, iii. 8729
requi*i*scit, requi*i*scet, v. 6397, etc.
r*i*ges = regis, xii. 2654
r*i*gna, xii. 975
Rh*i*nus, iv. 4905
S*i*ricam,[2] xiv. 2215
b*i*x. = vexillarius, x. 3502
vix*i*runt, x. 4492[3]

[1] For other examples see Schuchardt, II, 1 ff.; Grandgent, *op. cit.*, p. 85, and references.

[2] Possibly these words reflect the identity in pronunciation of Greek η and ι (p. 127).

[3] See other examples in Schuchardt, II, 69 ff.

Most of the instances of the symbol *i* for *ĕ*, except in hiatus (p. 21), and of the symbol *e* for *ĭ* can be explained as due to other causes than phonetic resemblance. Such forms as *benificium* and *benifacta* are traces of an original distinction between *benificium* with regular weakening in the second syllable and *bene facta*, a phrase without weakening. Standard Latin generalized the vowel *e*, but the uneducated tended rather to generalize the vowel *i*. To the regular process of weakening is to be ascribed such a form as *pellige*, *CIL* i. 1007. Furthermore the character II, often used for E, was frequently confused with I by the stonecutters.

Few of the inscriptions with *e* for *ĭ* and *i* for *ē* are earlier than the third century A.D.,[1] but that *ĭ* and *ē* were relatively near each other in earlier times as well is indicated by Greek transcriptions of Latin words and the orthography of the other Italic languages. There is abundant evidence that in the time of the Roman republic and early empire Latin *ĭ* was frequently, perhaps at first regularly, represented by Greek ε. Among the early instances of this orthography are Καικέλι, *CIG* 2322 *b* 30 (probably before 200 B.C.); Ὀφέλλιε, 2322 *b* 86 (probably before 200 B.C.); Λέπεδος, *SGDI* 2581. 122 (189–88 B.C.); κομέτιον, Dittenberger, *Sylloge*^{2}, 300, 2 (170 B.C.), *IG* ix. ii. 89 *a* 10 (150–147 B.C.), *BCH*, IX, 402, 3 (120–95 B.C.); Καπετώλιον, Dittenberger, *Sylloge*^{2}, 300, 33 (170 B.C.), *IG* xiv. 986 (first century B.C.); Καμελλία, Gaertringen, *Priene*, 41, 3 (136 B.C.); Νεμετώριος, *BCH*, II, 130, 37 (120–95 B.C.); Κομπιταλιασταί, *BCH*, VII, 13, 18 (97–96 B.C.); Δομέτιος, *IG* ix. i. 483 (94 B.C.),

[1] Some scholars assume that *ĭ* had become a close *e* by the third century; but the evidence scarcely warrants such a conclusion.

iii. 581 (probably about 16 B.C.); Τεβέριος, ii. 483, iii. 439, 440, 441 (these three before 4 A.D.); λεγεῶνος, *CIG* 5101 (33 A.D.); Δομετιανός, *IGRRP* i. 862, etc. (first century A.D.); Φλαμενία, *IG* iii. 1296 (early empire).[1] Conversely Greek ε is represented by Latin *i* in the loan-words *piper* (πέπερι), *citrus* (κέδρος), and *incitega* (ἐγγυθήκη), and in a number of epigraphical forms, such as *Philumina*, *CIL* iii. 14192. 16 (a bilingual inscription with Φιλουμένη in the Greek version), v. 2265, ix. 1431, etc., *Philuminus*, xiv. 3817, *Diaduminus*, xiv. 3337, *Susomine* (Σωζομένη), xii. 1509, *chizecae* (for Graeco-Latin *chezicē*), iv. 1364, *Archilaus*, x. 3699, *Artimisia*, iii. 2343*a*, x. 5757, *Artimidora*, xiv. 498.[2] From these facts we infer that Greek ε and Latin *ĭ* were similar sounds; that is, Greek ε was a close *e*, and Latin *ĭ* was an open *i*.

In the minor Italic languages as well as in Latin *ĕ* and *ĭ* tended to approach each other in quality. In Umbrian this is shown, as in Latin, by frequent use of the character *e* for *ĭ* and of the character *i* for *ĕ*. In the Oscan alphabet there is a special symbol ⊣, transcribed í, to denote an open *i* which resulted from an earlier *ē* or *ĭ*. Hence we find regularly such correspondences with Latin as these:

Latin	est	lēgatis	quis	īmus
Oscan	**est**	**lígatúís**	**pís**	**imad-en**

It is not to be assumed that the several Italic languages had the same vowel-system; in fact it is clear that in

[1] Other examples in Dittenberger, *Hermes*, VI, 130 ff., and Eckinger, *op. cit.*, pp. 29 ff.

[2] The words *Cliarcus*, *Panthia*, *Thiagene*, *Tiodorus*, *Tiudosius*, *Thiodotos*, *Thiophanes*, *Thiophiles*, and *Thrasia* may belong here instead of in the list on p. 21.

the second century B.C. Oscan had gone farther than either Umbrian or Latin in assimilating ē and ĭ. But it would nevertheless be probable, even without the evidence just adduced from Greek transcriptions, that so marked a tendency of Oscan and Umbrian was shared by republican Latin.

That the quality of *e* differed according to its quantity is stated by several of the Roman grammarians:

Marius Victorinus vi. 33. 3 f. K.: *O*, ut *e*, geminum vocis sonum pro condicione temporis promit, unde inter nostras vocales η et ω graecorum ut supervacuae praetermissae sunt.[1]

Pompeius v. 102. 4 ff. K.: *E* aliter longa, aliter brevis sonat. . . . . Ergo quomodo exprimendae sunt istae litterae? Dicit ita Terentianus, "Quotienscumque *e* longam volumus proferri, vicina sit ad *i* litteram."[2] Ipse sonus sic debet sonare, quomodo sonat *i* littera. Quando dicis *evitat*, vicina debet esse—sic pressa, sic angusta ut vicina sit ad *i* litteram. Quando vis dicere brevem *e*, simpliciter sonat.[3]

Servius *Ad Donatum* iv. 421. 16 ff. K.: Vocales sunt quinque, *a e i o u*. Ex his duae, *e* et *o*, aliter sonant productae, aliter correptae. . . . . *E* quando producitur vicinum est ad sonum *i*

[1] "*O*, like *e*, produces two vowel sounds according to the quantity; wherefore η and ω of the Greeks have been omitted from the list of our vowels as superfluous."

[2] There is no such statement in the extant writings of Terentianus; but the passage just cited from Marius Victorinus, who usually paraphrases Terentianus, may be based upon the remark which Pompeius quotes.

[3] "*E* sounds in one way when long, in another when short. . . . . Therefore how are those letters to be pronounced? Terentianus says, 'Whenever we want to produce long *e*, let it be near the letter *i*.' The sound itself should sound as the letter *i* sounds. When you say *evitat*, it should be a neighboring sound—so compressed, so narrow as to be near to the letter *i*. When you want to pronounce short ĕ, it sounds simply."

litterae, ut *meta;* quando autem correptum, vicinum est ad sonum diphthongi, ut *equus*.[1]

Servius' specification of only *e* and *o* as vowels whose quality differed according to quantity is probably a reflection of the fact that *e* corresponded to Greek ε and η, and *o* to Greek ο and ω. Nevertheless the statements which we have cited are so definite and so different from any extant passages in Greek that they have evidential value. Furthermore one fifth-century grammarian testifies to the difference between *ī* and *ĭ*.

Consentius v. 394. 19 ff. K.: Medium quendam sonum inter *e* et *i* habet (*i* littera), ubi in medio sermone est, ut *hominem*. Mihi tamen videtur quando producta est plenior vel acutior esse, quando autem brevis est, medium sonum exhibere debet.[2]

The first sentence clearly describes an open *i*, while the second distinguishes long *i* from this.

There is evidence that *ĕ* was closer before a vowel than in other positions. Although there are in inscriptions relatively few instances of the character *i* for *ĕ* final or before a consonant, *i* for *ĕ* in hiatus is rather common.

ar*i*a, *CIL* vi. 541, etc.	calc*i*amenta, ii. 5181. 32, 35, 36
argent*i*am, xiv. 35	cas*i*um, iv. 5380; ii. 18
baln*i*a, xiv. 914	Cer*i*alis, xii. 4371
balin*i*o, xiv. 2112; ii. 31	Cl*i*arcus, xiv. 1880

[1] "There are five vowels, *a e i o u*. Two of these, *e* and *o*, sound in one way when long, in another when short. . . . . When *e* is long it is near to the sound of the letter *i*, as *meta;* but when it is short, it is near to the sound of the diphthong (i.e. *ae*), as *equus*."

[2] "The letter *i* has a sound intermediate between *e* and *i*, when it is in the interior of a word, as *hominem*. To me, nevertheless, it seems fuller or sharper when long, but when it is short it should show the intermediate sound."

comm*i*antium, v. 1863
*i*amus, iv. 5092, etc.
ex*i*at, x. 6707
gallinac*i*o, xii. 4377
glar*i*a, viii. 2532 *B b* 9
(h)ab*i*as, iv. 2083, etc.
(h)ab*i*at, iv. 538
Hord*i*onia, *IG* xiv. 1362
horr*i*orum, *CIL* vi. 8680
Lab*i*o, ii. 4970, 257, etc.
lic*i*at, ix. 3437
lent*i*a, ix. 1655
noc*i*as, x. 4053
ol*i*arius, ix. 5307
Panth*i*a, xii. 421, etc.
par*i*at, i. 197, 10
per*i*at, iv. 1173, etc.
pil*i*atum, xii. 4247
Put*i*olanus, iv. 2152, etc.
Th*i*agene, xiv. 2781
T*i*odorus, v. 1683
T*i*udosius, x. 6936
Th*i*odotos, ii. 4970, 514
Th*i*ophanes, xiv. 420
Th*i*ophiles, v. 4510
Thras*i*a, x. 1786, etc.
bal*i*at, iv. 4874
vin*i*arum, v. 5543

The grammarians censure some of these and several similar forms (*Appendix* Probi iv. 198. 2 ff. K., Caper vii. 106. 11 K.), and there are numerous such misspellings in manuscripts.[1] The same tendency appears in a few Greek transliterations.

ἄρια, *CIL* viii. 12508. 15, 39, etc.
καλίκιος = calceus, *Ed. Diocl.* ix. 5*a*
Κεριᾶλις, *IG* xiv. 760. 5, 1027
λεντιάριοι, xiv. 2323
Ὀρδιόνιον, *CIG* 3831 *a* 7
ὄρρια, *IG* vii. 24. 11
πείλιον, *Ed. Diocl.* viii. 16
Ποτιολανός, *IG* xiv. 1102. 8

The Romance languages show that unaccented *ĕ* in hiatus ultimately became a semivowel (consonantal *i*) in the same way as original *ĭ* in hiatus (p. 45). It must therefore have become first a close *ĕ*, then *ĭ*, and finally consonantal *i*. A number of Romance words show that

[1] Other examples in Schuchardt, I, 424 ff.

even under the accent *ĕ* in hiatus finally became as close not only as *ĭ* but even as *ī;* namely Italian *cria* from *creat*, Italian *dio*, Spanish *dios* from *deus*, Italian and Spanish *mio* from *meus*. With these forms should be compared Ποτίολοι, *IG* xiv. 737, 739, 830, 1102. 22, 1114; λείων=*leo*, Audollent, *Defix. Tab.* 271. 34; *dia*=*dea*, *CIL* ix. 4178; Βοναδίης=*Bonae Deae*, *IG* xiv. 1449; *mia*, *CIL* iv. 3494; and *iam*=*eam*, which is censured by Caper vii. 106. 11 K.[1] That the close quality of *ĕ* in hiatus belonged to pre-classical Latin is made probable by the similar phenomena of Umbrian and Oscan (see Buck, *Grammar of Oscan and Umbrian*, p. 32). In the latter language the symbol ꟷ| (í) is regularly employed for original *ĕ* before a vowel as well as for original *ē* and *ĭ*.

It is probable that *ĭ* also was closer when followed by a vowel than when followed by a consonant; for the Romance forms of Latin *dies* show the normal development of Latin *ī*, Italian *dì*, Old French *di*, Spanish *dia*, Rumanian *zi*. The use of the tall form of *i*, usually a mark of long quantity, probably indicates the close quality of the vowel not only in DIES, *CIL* vi. 7527, DIE, 10239. 8, and in the frequent PIVS,[2] but also in COLLEGIO vi. 2040, CLAVDIO vii. 12, etc.

The Roman grammarians have much to say about a short abnormal vowel between *i* and *u*.

[1] For the explanation of *mieis*, *dii*, *diis*, *ii*, and *iis*, see Sturtevant, *Contraction in the Case Forms of the Latin* io- *and* ia-*stems and of* deus, is, *and* idem.

[2] *Pius* originally had a long vowel, but since this was shortened as early as Plautus' time, its quality was undoubtedly the same as that of *ĭ* in hiatus in other words. See other examples in Christiansen, *De Apicibus et* i *Longis*, p. 30.

Quintilian i. 4. 8: Medius est quidam *u* et *i* litterae sonus; non enim sic *optimum* dicimus ut *opimum*.[1]

Quintilian i. 7. 21: Etiam *optimus*, *maximus* ut mediam *i* litteram, quae veteribus *u* fuerat, acciperent, Gai primum Caesaris inscriptione traditum factum.[2]

We cannot translate the words *exilis*, *pinguis*, *plenus*, etc., into modern phonetic terms, but otherwise the following passages offer little difficulty:

Velius Longus vii. 49. 16 ff. K.: *I* vero littera interdum exilis est, interdum pinguis, ut in eo quod est *prodit*, *vincit*, *condit* exilius volo sonare, in eo vero quod significatur *prodire*, *vincire*, *condire* usque pinguescit ut iam in ambiguitatem cadat utrum per *i* quaedam debeant dici an per *u* ut est *optumus*, *maxumus*. In quibus adnotandum antiquum sermonem plenioris soni fuisse et, ut ait Cicero, rusticanum, atque illis fere placuisse per *u* talia scribere et enuntiare. Erravere autem grammatici qui putaverunt superlativa per *u* enuntiari. Ut enim concedamus illis in *optimo*, in *maximo*, in *pulcherrimo*, in *iustissimo*, quid facient in his nominibus, in quibus aeque manet eadem quaestio superlatione sublata, *manubiae* an *manibiae*, *libido* an *lubido?* Nos vero, postquam exilitas sermonis delectare coepit, usque *i* littera castigavimus illam pinguitudinem, non tamen ut plene *i* litteram enuntiaremus. Et concedamus talia nomina per *u* scribere iis qui antiquorum voluntates sequuntur, ne tamen sic enuntient quomodo scribunt.[3]

[1] "There is a certain sound intermediate between *u* and *i;* for we do not say *optimum* in the same way as *opimum*."

[2] "That *optimus* and *maximus* should take *i* as their middle letter, which for the ancients had been *u*, is said to have been brought about by an inscription of Gaius Caesar" (i.e., Julius Caesar; cf. Velius Longus, cited on p. 25).

[3] "But the letter *i* is sometimes thin and sometimes thick, as for example in *prodit*, *vincit*, *condit* I want it to have the thinner sound, but in *prodire*, *vincire*, *condire*, (and other forms of these verbs?) it grows so thick that finally it becomes doubtful whether certain words should be pronounced with *i* or with *u*, as *optumus*, *maxumus*. In these words we must note that the ancient language was of fuller sound and, as Cicero says, rustic, and that men of those times usually preferred to

It is odd that Velius Longus has chosen as his first three examples third persons singular which may come from verbs either of the third or of the fourth conjugation. Furthermore it is unusual to say *in eo quod significatur* for *in eo quod est*. Consequently Keil, Seelmann, and others assume an ellipsis after *volo sonare*, which they supply: *si dico ab eo quod est prodere, vincere, condere*. After *condire* they place a full stop. This would make Velius prescribe a different pronunciation of the third person singular according as the verb concerned is of the third or of the fourth conjugation. Such a difference is highly improbable; it certainly cannot be assumed on the sole basis of a doubtful emendation.

Velius Longus vii. 67. 3 ff. K.: Varie etiam scriptitatum est *mancupium*, *aucupium*, *manubiae*, siquidem C. Caesar per *i* scripsit, ut apparet ex titulis ipsius, at Augustus per *u*, ut testes sunt eius inscriptiones. . . . . Relinquitur igitur electio, utrumne per antiquum sonum, qui est pinguissimus et *u* litteram occupabat, velit quis enuntiare, an per hunc, qui iam videtur elegantior, exilius, id est per *i* litteram, has proferat voces.[1]

write and pronounce such words with *u*. But those grammarians have been mistaken who have thought that superlatives are pronounced with *u*. For even though we yield to them in regard to *optimus*, *maximus*, *pulcherrimus*, *iustissimus*, what will they do with these nouns, in which the same doubt as before remains, though they are not superlatives, namely *manubiae* or *manibiae*, *libido* or *lubido?* As for us, ever since thinness of speech has begun to be agreeable, we have constantly corrected that thickness by the use of the letter *i*, not, however, so as fully to pronounce the letter *i*. And let us concede the writing of such words with *u* to those who follow the preferences of the ancients, provided, however, they do not pronounce as they write."

[1] "*Mancupium*, *aucupium*, and *manubiae* have been variously written, since Gaius Caesar wrote them with *i*, as appears from his inscriptions, but Augustus with *u*, as his inscriptions testify. . . . . Consequently the choice is left open whether one prefers to pronounce with

Velius Longus vii. 68. 3 ff. K.: Nonnulli etiam varie modo per *u* modo per *i* scripserunt *artubus* et *artibus*, ut, si cum significatione *artus* essent, ut *arcus* et *partus*, *u* littera in dativo et ablativo servaretur, si vero essent *artes*, ut *arces* et *partes*, tunc idem illi casus per *i* scriberentur. Mihi videtur nimis rusticana enuntiatio futura si per *u* extulerimus. Ita tamen existimo enuntiandum, ut nec nimis *i* littera exilis sit, nec, *u* litteram si scripseris, enuntiationis sono nimis plena.[1]

Velius Longus vii. 75. 12 ff. K.: *Aurifex* melius per *i* sonat quam per *u*. At *aucupare* et *aucupium* mihi rursus melius videtur sonare per *u* quam per *i*; et idem tamen *aucipis* malo quam *aucupis*, quia scio sermonem et decori servire et aurium voluptati. Unde fit ut saepe aliud scribamus, aliud enuntiemus, sicut supra locutus sum de *viro* et *virtute*, ubi *i* scribitur et paene *u* enuntiatur. Unde Ti. Claudius novam quandam litteram excogitavit similem ei notae quam pro aspiratione Graeci ponunt, per quam scriberentur eae voces, quae neque secundum exilitatem *i* litterae neque

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the ancient sound which is very thick and used to require the letter *u*, or whether he will produce these words in thinner fashion with this sound which now seems more elegant, that is with the letter *i*."

Velius Longus sometimes distinguishes carefully between spelling and pronunciation, but sometimes he confuses the two. In the next to the last sentence of the first passage he is clearly speaking of orthography, but he uses the phonetic terms *exilitas* and *pinguitudo*. In the fourth passage he seems to speak of sound alone, but the reference to Claudius' new letter shows that he is really discussing the confusion between two ways of writing a single sound. There is, then, little doubt that this second passage also really discusses a divergence in spelling rather than in pronunciation. Otherwise Müller, *De Litteris* i *et* u *Latinis*, p. 30.

[1] "Some have also varied in writing *artubus* and *artibus* sometimes with *u* and sometimes with *i*, so that, if the word had the meaning of *artus*, the letter *u* was retained in the dative and ablative, as in *arcus* and *partus*, but that, if the meaning were that of *artes*, those same cases were written with *i*, as in *arces* and *partes*. To me it seems that the pronunciation would be too rustic if we should speak the words with *u*. Nevertheless I think that one should pronounce in such a way that the letter *i* shall not be too thin, and that if you write *u* it shall not be too full in the sound of its pronunciation."

rursus secundum latum litterae sonum enuntiarentur, ut in eo quod est *legere, scribere*. . . . . Est autem ubi pinguitudo *u* litterae decentius servatur, ut in eo quod est *volumus, nolumus, possumus*. At in *contimaci* melius puto *i* servari; venit enim a *contemnendo*, tametsi Nisus et *contumacem* per *u* putat posse dici a *tumore*.[1]

Marius Victorinus vi. 19. 22 ff. K.: Sunt qui inter *u* et *i* litteras supputant deesse nobis vocem . . . . sed pinguius quam *i* exilius quam *u*. Sed et pace eorum dixerim, non vident *y* litteram desiderari; sic enim *gylam, myserum, Syllam, proxymum* dicebant antiqui. Sed nunc consuetudo paucorum hominum ita loquentium evanuit, ideoque voces istas per *u* vel per *i* scribite.[2]

We know of the abnormal vowel of *vir, virgo, video*, etc., only from the Roman grammarians and a few late spellings such as *unibyriae, CIL* xiv. 418, *Byrginio*, xiv.

[1] "*Aurifex* sounds better with *i* than with *u*. But *aucupare* and *aucupium* on the other hand seem to me to sound better with *u* than with *i;* and nevertheless I prefer *aucipis* to *aucupis*, because I know that speech is obedient to beauty and the pleasure of the ears. Wherefore it often happens that we write one thing and speak another, as I said above in regard to *vir* and *virtus*, in which *i* is written and a sound similar to *u* is pronounced. Consequently Tiberius Claudius invented a new letter like the mark which the Greeks write for the rough breathing, that with this letter those words should be written which are not pronounced according to the thin sound of the letter *i* nor according to the wide sound of the letter, as in the forms of *legere* and *scribere*. . . . . In some words, however, the thickness of the letter *u* is more agreeable, as in *volumus, nolumus, possumus*. But in *contimax* I think it better to keep *i;* for it comes from *contemno*, although Nisus thinks that one may say *contumax* with *u* from *tumor*."

It is remarkable that in this passage the *i* of *legit* seems to be called *latus*, although in the passage quoted on p. 24 the same sound is called *exilis*, whichever interpretation of that passage we adopt.

[2] "Some writers reckon that we lack a vowel intermediate between *u* and *i* . . . . but thicker than *i* and thinner than *u*. But (with their permission may I say it!) they do not see that what is wanted is the letter *y;* for in that way the ancients spoke *gyla, myser, Sylla, proxymus*. But now the practice of the few who spoke thus has vanished; therefore write these words with *u* or with *i*."

1064, and in such words the Romance languages show only front vowels, as in Italian *vergine* from *virgo*. Apparently the change occurred only in a part of the linguistic community and it was not permanent even there. There is no evidence for the abnormal vowel in these words in republican times, and so we need not connect them with the words which tended to be written with *u* in early texts.

The variation between *u* and *i* is well attested in *lumpa* or *limpa*, *lubet* or *libet*, *clupeus* or *clipeus*, *liber* "inner bark" from **luber*, whose original *ŭ* followed *l* and preceded a labial consonant; in *inclutus* or *inclitus*, *lacruma* or *lacrima*, *obstupesco* or *obstipesco*, whose original unaccented *ŭ* stood before a single consonant; and in numerous words such as *recupero* or *recipero*, *maxumus* or *maximus*, *Crassupes* or *Crassipes*, whose original unaccented *ă*, *ĕ*, or *ŏ* stood before a labial consonant. In republican times the tendency was to write such words with *u*, whereas *i* was preferred in imperial times, and the Romance languages usually show front vowels, as in Italian *orefice* from *aurufex*, *aurifex*. In many words, however, *i* was firmly established at the beginning of our records (*sinciput*, *minimus*, *anima*, *legimus*). In other words, on the contrary, *u* remained the normal spelling in imperial times (*occupo*, *contubernalis*, *postumus*, *volumus*, *possumus*). In a few cases the Romance languages show the regular development of *ŭ*, as in Italian *ricovero* from *recupero*. The vowel of the preceding syllable had something to do with fixing the *u* or the *i*, as one learns by contrasting *volumus* with *legimus*, *postumus* with *minimus*, *occupo* with *recipio*, *contubernalis* with *sinciput*, etc.

It is impossible to say precisely what the pronunciation was. We may assume an abnormal vowel which gradually shifted from a sound near to the *u*-sound to one near the *i*-sound, and assume further that in some words this sound was early assimilated into ordinary *u* by a preceding *o* (*volumus*), or into ordinary *i* by a preceding *a*, *e*, or *i* (*legimus*). But we may equally well assume two abnormal vowels, one relatively near to *u* and the other relatively near to *i*, and suppose that in many words the first changed into the second.

There were, then, two varieties of *e*-sound in Latin. The close *ē* was similar in quality to French *e* or *é* in *nez élevé*, or German *e* in *Beet*, *sehne*, or the vowel of Scotch and American English *bake*, etc. The open *ĕ* was similar to French *è* or to English *e* in *men*. Before vowels *ĕ* was closer than in other positions; it may have had the same quality as *ē*. There were also two varieties of the normal *i*-sound in Latin. The close *ī* was similar to the vowel of English *queen* or to French *i*, and the open *ĭ* to the *i* of English *pin*. Before vowels, however, *ĭ* seems to have approached the sound of *ī*. The abnormal vowel of *optimus*, *libet*, etc., may have been similar to French *u* or German *ü*.

O and U[1]

An almost unanimous tradition leads us to assign to the Latin characters *o* and *u* the value of back vowels, and to place *u* at the extreme of the vowel triangle opposite *i*. This tradition supplements and confirms the one which gives *e* and *i* the value of front vowels.

[1] Müller, *De Litteris* i *et* u *Latinis*, Marburg, 1898, pp. 19 ff.; Anderson, *TAPA*, XL, 99 ff.; Sturtevant, *CP*, XI, 202 ff.

In most languages a certain harmony exists between the sounds lying along the two legs of the vowel triangle (pp. 9 f.). We may therefore expect to find that in Latin *ū* and *ō* were respectively closer than the corresponding short sounds, since *ī* and *ē* have been shown to be closer than *ĭ* and *ĕ* respectively.

The evidence is of the same general character as in the case of the front vowels, but less abundant. The following table illustrates the development of *o* and *u* in the Romance languages.

	ŏ	*ō*		*ŭ*		*ū*
Latin.........	r*o*ta	dolor*o*sus	v*o*x	g*u*la	n*u*x	m*u*rus
Italian........	ruota	doloroso	voce	gola	noce	muro
French.......	roue	douloureux	voix	gueule	noix	mur
Spanish.......	rueda	doloroso	voz	gola		muro
Portuguese....	roda		voz	gola	noz	muro
Sardinian.....	roda		boge	bula	nuge	muru
Rumanian....	roata		boace	gura	nuc	

Everywhere, except in Sardinian and Rumanian, *ō* and *ŭ* have undergone parallel development, although both sounds appear in various forms according to the nature of the surrounding sounds, as in French *gueule* and *noix*, both of which contain Latin *ŭ*. Consequently *ō* must have been relatively near the *u*-sound and *ŭ* relatively near the *o*-sound; in other words, *ō* was closer than *ŏ*, and *ŭ* was more open than *ū*. Furthermore, *ū*, like *ī*, remains a close vowel everywhere, even though in French it has become an abnormal vowel.

As in the case of the front vowels, the misspellings of inscriptions confirm the evidence of the Romance languages. Here are a few of the many instances of *o* for *ŭ*:

act*o*arius, *CIL* v. 1595
Calag*o*rrit(anus) ii. 4245
can*o*nt, iv. 4112
col*o*bar(ia), ii. 4592
col*o*mnas, ix. 4875
c*o*m, iv. 3935
c*o*mulatis, x. 5349
co(n)i*o*gi, ii. 2997; iii. 14309
Ex*o*perius, xii. 492
Febr*o*arius, xii. 936
f*o*ndabet = fundavit, xii. 936
morit*o*r, iii. 14190
Patr*o*inus, ix. 1278
res*o*rge, xii. 2120
ridic*o*la, iv. 5360
s*o*b, xii. 933
s*o* = sum, x. 2070
trebib*o*s, ix. 4204
*o*biqe, iv. 2288
Verec*o*ndus, viii. 6070
*o*rna, xii. 972
*o*xor iii. 9585
*o*xsor, iii. 9605[1]

The use of *u* for *ō* is most common in Southern Italy and Gaul, where the native languages, Oscan and Gallic, lacked *ō*. It is nevertheless significant that in both regions Latin *ō* was confused with *u* rather than with *a*,[2] as would have been the case if Latin *ō* had been an open sound, that is, nearer to *a* than to *u*. There are besides a few instances of *u* for *ō* from other parts of the Roman world. In the following list, forms cited from Volumes iv, ix, and x of *CIL* are likely to reflect Oscan influence, and those from Volumes v and xii Gallic influence.

cern*u*, *CIL* iv. 6698
C*u*stantina, ix. 4660
dol*u*rem, ix. 648
Fl*u*rinus, xii. 2086
fl*u*s, iv. 5735
lect*u*r, xii. 2701
mai*u*res, ix. 648
Maus*u*leum, viii. 9189
mens*u*rum, ix. 648
nep*u*s, ix. 648; x. 4523; xii. 5336
pronep*u*s, ix. 648
n*u*min[clator], xiv. 4010
Oct*u*bris, ii. 2959. 13; iii. 14893
orat*u*riu, xiv. 3898
Pann*u*nia, xii. 15
parent*u*rum, ix. 648
p*u*nere, iii. 9585
praet*u*rianam, xii. 4355
rect*u*r, xii. 338, 1499
Vict*u*rina, ix. 1373
ux*u*re, v. 5416

[1] Other examples in Schuchardt, II, 149 ff.

[2] In Gallic Indo-European *ō* had become *ā*.

We have, besides, accusatives plural of the second declension: *annus* (common in Gaul and Southern Italy), *universus*, xiv. 2934, *emeritus*, xii. 2116, *natus*, 2179; ablatives singular of the second declension: *quartu*, xii. 1504, *quintu*, 2079, *septimu*, 488, *titolu*, 1725, *huc*, 1724, etc., *dictu*, *factu*, xiv. 2846, *meritu*, 2080, *oraturiu*, 3898, *speculu*, 2772.[1]

Just as Latin *ĭ* was often represented by Greek *ε*, so Latin *ŭ* was often represented by Greek *ο*, as in Μόμμιος, Πόπλιος, Λεύκολλος (later Μούμμιος, Πούπλιος, Λούκουλλος); but since Greek had no pure short *u*, we can infer only that Greek *ο* was nearer to Latin *ŭ* than was any other Greek short vowel. Of more significance is the representation of Greek *ο* by Latin *u* in such words as *amurca* (ἀμόργη), *cummi gummi* (κόμμι), *cunila* (κονίλη), *purpura* (πορφύρα), *rumpia* (ῥομφαία), and the following:

amp*u*ra, *CIL* iv. 6710, 6711	Men*u*pilus, ix. 6082. 53
Cle*u*nica, ii. 3451, 3505	The*u*dosius, ix. 1365, 1946; xii. 5750
emp*u*rium, ix. 10	Ti*u*dosio, x. 6936[2]
La*u*dice, ii. 147	

Since Greek *ο*, as we shall see (p. 138), was a close *o* and Latin *ŭ* was an open *u*, they were similar in quality as well as in quantity. Confusion between them was to be expected.

Confirmatory evidence is afforded by Umbrian and Oscan. In Umbrian documents written in the Latin alphabet[3] *ŏ* is kept distinct from *u*, while original *ō*

[1] Other examples in Schuchardt, II, 91 ff.

[2] Other examples in Schuchardt, II, 144 ff.; Claussen, *Rom. Forsch.*, XV, 858.

[3] The native alphabet had but a single character for *o* and *u*. On this whole matter see Buck, *Grammar of Oscan and Umbrian*, pp. 36 ff.

is written sometimes *o* and sometimes *u*. In Oscan *ŏ* is in general retained, but original *ō* is regularly written *u*.

Another indication of the close sound of *ū* is furnished by Plautus *Men.* 653 f. Menaechmus' wife is accusing him of having given her *palla* to his pretty neighbor Erotium, and she repeatedly uses the pronoun of the second person.

> *Menaechmus:* Égon dedí? *Matrona:* Tu, tú istic, ínquam.
> *Peniculus:* Vín adférri nóctuam,
> quaé "tu tú" usque dícat tíbi?

The grammarians speak of a difference in quality between *ō* and *ŏ*, but it is not easy to interpret all that they say. The earliest description is that of Terentianus Maurus (vi. 329. 121 ff. K.):

> *O* Graiugenum longior altera est figura,
> alter sonus est et nota temporum minori;
> compendi nostri meliora crediderunt,
> vocalibus ut non nisi quinque fungeremur;
> productio longis daret ut tempora bina,
> correptio plus tempore non valeret uno.
> Hinc ἦτα minus scribimus, hinc et ω supremum;
> una quoniam fas habitum est notare forma,
> pro temporibus quae geminum ministret usum.
> Igitur sonitum reddere cum voles minori,
> retrorsus adactam modice teneto linguam,
> rictu neque magno sat erit patere labra.
> At longior alto tragicum sub oris antro
> molita rotundis acuit sonum labellis.[1]

[1] "Long Greek *o* has one letter, and there is another sound and another letter for the shorter vowel; our fellow-countrymen thought economy better, so that we employ only five vowels; so long quantity has two *morae* and short quantity has the value of only one. Hence we do not write η and ω; for it has been held proper to write with

In view of the context one might suspect that in the last five lines Terentianus is repeating a Greek grammarian's description of *o* and *ω*; but Greek *ω* was an open *o*, and the phrase *rotundis labris* applies better to a close *o*. Marius Victorinus paraphrases the last sentence (vi. 33. 6 ff. K.):

Longum autem productis labris, rictu tereti, lingua antro oris pendula, sonum tragicum dabit.[1]

With these passages we must compare the descriptions of the *u*-sound.

Terentianus Maurus vi. 329. 142 ff. K.:

Hanc edere vocem quotiens paramus ore,
nitamur ut *u* dicere, sic citetur ortus:
productius autem coeuntibus labellis
natura soni pressior altius meabit.[2]

Marius Victorinus vi. 33. 8 f. K.:

U litteram quotiens enuntiamus, productis et coeuntibus labris efferemus.[3]

Obviously *ō* was similar to the *u*-sound, at least as regards the position of the lips.

Although *ŏ* and *ŭ* were thus separated from each other by a considerable interval, *ŏ* became *ŭ* under certain

one letter, which shall render double service according to its quantity. Therefore when you want to give sound to short *o*, hold the tongue drawn back moderately, and it will be enough for the lips to be moderately wide open. But long *o*, formed in the deep cavern of the mouth, sharpens its tragic sound with rounded lips."

[1] "Long *o*, however, with lips drawn forward, the opening rounded, the tongue hanging loose in the cavern of the mouth, will give a tragic sound."

[2] "Whenever we prepare with the mouth to pronounce this vowel, so as to try to say *u*, let its production start thus: if the lips are drawn forward and come together, the character of the sound will become closer and go deeper."

[3] "Whenever we pronounce *u*, we shall produce it with the lips drawn forward and coming together."

conditions in early Latin, as in *uncus* (ὄγκος), *multa* from *molta*, *sedulo* from **sē dolōd*, and the inflectional endings *us*, *um*, *unt* (pp. 206 f.). These changes were completed by the end of the third century B.C., except in words with *u* or *v* before the *ŏ*; in which case *o* was the usual spelling until about the beginning of the Christian Era. It is certain, however, that the change of *ŏ* to *ŭ* even after *u* and *v* was complete before the latter date. The following passage in Augustine's *De Dialectica* xxxii. 2 = *Principia Dialecticae* 6 has sometimes been ascribed to Varro (GS, p. 240):

> Nemo abnuit syllabas in quibus *v* littera locum obtinet consonantis, ut sunt in his verbis primae, *vafer*, *velum*, *vinum*, *vomis*, *vulnus*, crassum et quasi validum sonum edere.[1]

Since we have here consonantal *u* before each of the five vowels, it follows that *vulnus* was pronounced with *u* and might be so written at the time the passage was composed. Unfortunately, however, there is no good reason for supposing that Varro was really its author (see GS, p. 301). The epigraphical evidence, though scanty, is conclusive. *CIL* i. 206. 32, of 45 B.C., contains *suum*. *CIL* i. 34, of about 150 B.C., has *quom* for the preposition *cum*, and this indicates that the conjunction *quom* had already come to be pronounced *cum*.[2]

[1] "No one denies that those syllables produce a thick, I might say a powerful, sound in which the letter *v* takes the place of a consonant, as the initials in these words, *vafer*, *velum*, *vimum*, *vomis*, *vulnus*."

[2] It is less probable that the confusion was between *cum* and **com*, which must have resulted from *quom* at the time when *parvom* became *parum* (pp. 39 f.). Our manuscripts of Plautus and Terence show *quom* so frequently that we must assume that the *u* was restored in this word, as *v* was in *parvom*, etc. It is not likely that two pronunciations of so common a word persisted.

That the change had not occurred in the time of Ennius, Plautus, and Caecilius is indicated by the assonance in the following passages:

Ennius *Ann.* 464 V.:

> Aversabuntur semper vos vostraque volta.

Plautus *Amph.* 1:

> Ut vós in vóstris vóltis mércimóniis.

Plautus *Amph.* 114:

> Dum cum ílla quácum vólt volúptatém capit.

Caecilius *Aethrio* 5 R.:

> Actútum vóltis, émpta est; nóltis, nón empta ést.

Long *o*, then, like *ē*, was a close sound, similar in quality to the vowel of French *peau* or German *Sohn*. Latin *ŏ* was an open sound similar to the *o* in English *not* according to the pronunciation which is approved in England and in Boston. Latin *ū* was similar to the vowel of English *moon*, and *ŭ* to that of English *book*. In Plautus and Terence the writing of *o* after *u* and *v* is phonetic; but in the later republic *u* was pronounced precisely as in imperial times, when it finally came to be written after *u* and *v*.

Y[1]

The Romans borrowed their alphabet from the Italian Greeks, some of whom certainly employed *υ* in its original value as a normal *u*. Tarentum and Heraclea were Laconian colonies. Cumae, which was very probably the immediate source of the Roman alphabet, was a Chalcidian colony (p. 132). It is probable, therefore,

[1] Claussen, *Rom. Forsch.*, XV, 860 ff.

that the Romans borrowed the letter V from Greeks in whose speech it represented a normal back vowel. Such early loan-words as *tus* = θύος, *gubernare* = κυβερνᾶν, and *purpura* = πορφύρα retained the vowel which the Romans heard their Greek neighbors pronounce.

Even the Attic and Hellenistic υ, which was similar to French *u* (pp. 132 ff.), was usually replaced by *u* in loan-words which got into vulgar Latin in later times. Consequently the Romance languages show the same development as from original Latin *u;* for example, Italian *lonze* from λύγξ, *grotta* from κρύπτη. Italian *mirto*, *lira* (μύρτος, λύρα), and the like are learned words.

Educated Romans of the late republic and the empire, on the other hand, pronounced Greek words in Latin as they would when speaking Greek, and to represent the sound of Hellenistic υ they borrowed the Greek letter in the form which was current among the cosmopolitan Greeks of their day (Y).[1]

The Romans always regarded *y* as a Greek letter, appropriate only in loan-words. The matter is discussed by several ancient authors:

Cicero *Orator* 160: *Burrum* semper Ennius, numquam *Pyrrhum;* "Vi patefecerunt *Bruges*," non *Phryges*, ipsius antiqui declarant libri. Nec enim Graecam litteram adhibebant, nunc autem etiam duas, et cum *Phrygum* et *Phrygibus* dicendum esset, absurdum erat aut etiam in barbaris casibus Graecam litteram adhibere aut recto casu solum Graece loqui; tamen et *Phryges* et *Pyrrhum* aurium causa dicimus.[2]

[1] Many early loan-words, such as those mentioned above, had become so firmly established that they retained their *u* even in standard Latin.

[2] "Ennius always wrote *Burrus*, never *Pyrrhus;* 'By force the *Bruges* gained passage,' not the *Phryges*, declare ancient editions of the poet. For they did not use the Greek letter, but now we use even two Greek letters. And when one had to say *Phrygum* and *Phrygibus*, it was

Terentius Scaurus vii. 25. 13 ff. K.: *Y* litteram supervacuam Latino sermoni putaverunt, quoniam pro illa *u* cederet. Sed cum quaedam in nostrum sermonem Graeca nomina admissa sint, in quibus evidenter sonus huius litterae exprimitur, ut *hyperbaton*, et *hymnus*, et *hyacinthus*, et similia, in eisdem hac littera necessario utimur.[1]

Caper vii. 105. 17 f. K.: *Y* litteram nulla vox nostra adsciscit. Ideo insultabis *gylam* dicentibus.[2]

The value of *y* in standard Latin is indicated both by its value in Greek and by the statement of Marius Victorinus, vi. 19. 22 ff. K. (quoted on p. 27), that *y* was equivalent to the sound intermediate between *u* and *i*. Latin *y* was similar to French *u* and German *ü*.

Consonantal V[3]

The Romans have left us much testimony to the frequent consonantal value of *i* and *u*. The earliest passage of the sort is Quintilian i. 4. 10:

Atque etiam in ipsis vocalibus grammatici est videre, an aliquas pro consonantibus usus acceperit, quia *iam* sicut *etiam* scribitur et *vos* ut *tuos*.[4]

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absurd either to use a Greek letter even in non-Greek cases (i.e., along with Latin case-endings) or to speak Greek in the nominative case only; still we say *Phryges* and *Pyrrhus* for our ears' sake."

[1] "*Y* they considered superfluous for the Latin language, since *u* was employed for it. But since certain Greek words have been admitted into our speech, in which the sound of this letter is evident, as *hyperbaton*, *hymnus*, *hyacinthus*, and the like, we necessarily employ this letter in them."

[2] "No Latin word admits the letter *y*. Therefore you will scoff at those who say *gyla*."

[3] Grundy, *TPhS*, 1907, pp. 1 ff.; Parodi, *Romania*, XXVII, 177 ff.; Jones, *CR*, VII, 5 f.; Müller, *De Litteris* i *et* u *Latinis*, pp. 42 ff.

[4] "And even in regard to the vowels themselves the grammarian must consider whether usage has taken some of them for consonants, because *iam* is written as *etiam*, and *vos* as *tuos*." The examples are corrupt in the manuscripts, but the general sense of the passage is not in doubt.

Latin poetry from Plautus down abundantly confirms this statement; *volo*, for example, frequently forms an iambic close, where there is no room for an additional syllable.

The Greek ϝ was adopted by the Etruscans, and from them by the Umbrians and Oscans (in the form ꟻ), as a symbol for the sound *w*. Probably it was at first used by the Romans also in this value as well as in combination with H (Praenestine FHE FHAKED = *fefaced*) to indicate the sound *f*; but after the digraph FH had been simplified by the loss of its second member, F ceased to be used in any other value, and the character V was henceforth employed both as a vowel and as a consonant. It is obvious that at first *u* consonant must have been similar to *u* vowel; that is, it must have been more like English *w* than like English *v*.

That the sound remained semivocalic[1] for some centuries is shown by a number of early Latin phonetic changes. Consonantal *u* became a vowel after the loss of a following short vowel in *fautor*:*faveo*, *lautus*:*lavo*, *naufragus*:*navis*, and in many other words. Consonantal *u* was regularly lost by dissimilation before *ŏ* in syllables unaccented according to the prehistoric initial accent (see pp. 207 ff.), as in *parum* from *parvom*, *deorsum* from *devorsom*, *secundos* from **secondos* from **sequondos*. In the numerous words in which consonantal *u* was later restored by analogy, it operated in the same way as vocalic *u* to prevent the change of the following *o* to *u*, as in *quom*, *servos*, *parvolus*.

[1] I use the terms "semivowel" and "semivocalic" of such sounds as [w] and [j] (English *war*, *yet*), and the term "spirant" of such sounds as [v] and [z].

Unaccented *ru* and *lu*, if followed by a vowel, changed vocalic to consonantal *u;* for example, *volvo* from **veluo* (Greek [ϝ]ελύω), *solvo* from **se-luo* (Greek λύω). The change was complete after short vowels at the beginning of the literature (*volvo*, Ennius *Ann.* 174 V., *solvo*, Lucilius 48 M.); but after long vowels the comic poets have *lārŭa* (Plautus *Amph.* 777), *mīlŭos* (Plautus *Aul.* 316, Terence *Phor.* 330), and *pēlŭim* (Laberius 94 R.). When *u* in these words finally became consonantal, at some time later than Terence, it must at first have been semivocalic.

Upon the change of *ŏ* to *ŭ* after *u* consonant, probably shortly before 150 B.C. (p. 35), consonantal *u* was lost before unaccented *ŭ;* as a result of the two changes *quom* became *cum*, *quoius* became *cuius*, *equos* became *ecus*, *bovom* became *boum*, *vivos* became *vius*, etc. Evidently consonantal and vocalic *u* were still so similar that the latter could induce the dissimilative loss of the former.

That consonantal *u* was still a semivowel in the first century B.C. is shown by Cicero's story of the omen which warned Marcus Crassus not to set out on his fatal expedition against the Parthians (p. 9).

Div. ii. 84: Cum M. Crassus exercitum Brundisii imponeret, quidam in portu caricas Cauno advectas vendens *Cauneas* clamitabat. Dicamus, si placet, monitum ab eo Crassum, *caveret ne iret*, non fuisse periturum si omini paruisset.[1]

Horace's use of *silvae* as a trisyllable (*Carm.* i. 23. 4, *Epod.* 13. 2) may have been an imitation of early Latin

[1] "When Marcus Crassus was embarking his army at Brundisium, some one at the harbor who was selling figs imported from Caunus was crying, '*Cauneas.*' We may say, if we please, that Crassus was warned by him, '*Cave ne eas,*' and that he would not have perished if he had obeyed the omen."

mīlŭos, etc.; but it would scarcely have been possible if *v* had been a spirant.

A semivocalic pronunciation is indicated but perhaps not quite proved for the first century A.D. by Phaedrus 126 H. = *App.* 21 M.

> Quidam per agros devium carpens iter
> "Ave" exaudivit et moratus paululum,
> adesse ut vidit neminem, cepit gradum.
> Iterum salutat idem ex occulto sonus.
> Voce hospitali confirmatus restitit,
> ut quisquis esset par officium reciperet.
> Cum circumspectans aequor haesisset diu
> et perdidisset tempus aliquot milium,
> ostendit sese corvus et supervolans
> "Ave" usque ingessit. Tum se lusum intellegens,
> "At tibi pro hoc male sit, ales," inquit, "pessime,
> qui festinantis sic detinuisti pedes."[1]

Quintilian refers to the distinction between vocalic and consonantal *u* as a fine point requiring a "trained ear."

i. 4. 6–8: Ne quis igitur tamquam parva fastidiat grammatices elementa, non quia magnae sit operae consonantes a vocalibus discernere ipsasque eas in semivocalium numerum mutarumque partiri, sed quia interiora velut sacri huius adeuntibus apparebit multa rerum subtilitas, quae non modo acuere ingenia puerilia sed exercere altissimam quoque eruditionem ac scientiam possit. An cuiuslibet auris est exigere litterarum sonos? Non hercule magis

[1] "A man who was following a lonesome path across the fields heard the cry *ave*, paused a moment, but, since he saw no one, started on. Again the same sound from a hidden source greeted him. At the friendly call he stopped, determined that whoever it was should receive like courtesy. When he had waited long in looking over the plain and had lost time enough for several miles, there appeared a raven and flying above him it poured out *ave* after *ave*. Then, recognizing that he had been fooled, the traveler said, 'A plague take you, miserable bird, for delaying me when in haste!'"

quam nervorum. At grammatici saltem omnes in hanc descendent rerum tenuitatem, desintne aliquae nobis necessariae litterarum, non cum Graeca scribimus (tum enim ab iisdem duas mutuamur) sed propriae in Latinis, ut in his *servus* et *vulgus* Aeolicum digammon desideratur.[1]

Some of the earliest Latin loan-words in the Germanic languages were probably borrowed in the first or second century A.D. Latin *vinum* was no doubt borrowed by the Germans along with the earliest importations of the commodity, and we learn from Caesar *B.G.* i. 1 that wine was a commodity which followed the Roman arms very closely. Hence Gothic *wein* and Anglo-Saxon *wīn* are evidence for Latin of an early date. Similarly *vallum* (Anglo-Saxon *weall*) was probably adopted at the time when the Germans learned their first lesson in fortifying camps. There is no doubt that Germanic *w* was a semivowel during the first two centuries, as it had been from the beginning and as it is still in English; and it is almost certain that the Indo-European aspirates had become spirants by the first century A.D., for that change is known to have preceded the loss of the Indo-European system of accent. Since, then, the early Germans had

[1] "Let no man, therefore, look down on the elements of grammar as small matters; not because it requires great labor to distinguish consonants from vowels, and to divide them into the proper number of semivowels and mutes, but because, to those entering the recesses, as it were, of this temple, there will appear much subtlety on points, which may not only sharpen the wits of boys, but may exercise even the deepest erudition and knowledge. Is it in the power of every ear to distinguish accurately the sounds of letters? No more, assuredly, than to distinguish the sounds of musical strings. But all at least who are grammarians will descend to the discussion of such fine points as these; whether any necessary letters be wanting to us, not indeed when we write Greek, for then we borrow two letters from the Greeks, but letters that are proper to Latin words, as for example, in *servus* and *vulgus* the Aeolic digamma is needed."

a bilabial spirant, it is significant that they preferred the semivowel.[1] Gothic *Silbanus* is certainly a later loan-word.

The confusion of *b* and *v* in inscriptions begins in the first century A.D.;[2] for example, *baliat*, *CIL* iv. 4874, *beni*, 5125, *Berus*, 4380, *Bibius*, 3145 *b*, *lebare*, iii. 7251 (49 or 50 A.D.), *iuvente* = *iubente*, xi. 137 (1 A.D. ?), *vene* = *bene*, vi. 7582 (187 A.D.). By the third century the confusion had become so common that one is inclined to think that *v* was then a spirant in standard Latin. That such was the case in the fifth century is proved by the fact that Germanic words in French and Italian, which date from the German invasions in that century, have *gu* for Germanic *w*, as in Italian *guarire* from Gothic *warjan*, the related *guerra*, and French *guerre*, and in Italian *guisa*, French *guise*, from cognates of Anglo-Saxon *wise*.

The spirant pronunciation of *v* must lie at the basis of Priscian's etymology of *caelebs*.

ii. 18. 9 f. K.: Apud nos quoque est invenire quod pro *v* consonante *b* ponitur, ut *caelebs*, "caelestium vitam ducens," per *b* scribitur, quod *v* consonans ante consonantem poni non potest.[3]

[1] Since the Greeks of the Ciceronian and Augustan ages had neither semivowel nor spirant it was impossible for them to represent Latin *v* even approximately. Their various attempts to do the impossible can scarcely teach us anything about the Roman pronunciation of this letter.

[2] *Triumphavit* for *triumphabit* in the *Lex Iulia Municipalis*, *CIL* i. 106. 63, is one of the numerous graver's errors of this document, and probably has no phonetic significance.

[3] "In Latin also it is possible to find instances of *b* for *v* consonant; for example, *caelebs* from *caelestium vita* is spelled with *b*, because *v* consonant cannot stand before a consonant." Since the nominative, *caelebs*, was pronounced with *-ps*, Priscian must have had the oblique cases in mind.

The Romance languages show spirants, as in Italian *vino*, Spanish *vino*, French *vin*.

Consonantal *u* after *q* must have differed in some respect from consonantal *u* in other surroundings, since it does not make position in verse, and since in some of the Romance languages it has remained a semivowel until our own day, as in Italian *quale*, Spanish *cual*, Portuguese *qual*. Both peculiarities indicate that the syllable division occurred before rather than in the middle of the group *qu*. Possibly the rounding of the lips was synchronous with the articulation of *q* (p. 103). That the sound was nearly the same as in other positions appears from the fact that it shared in most of the phonetic processes which we have discussed above.

Consonantal I[1]

Since the Greek alphabet had no symbol for consonantal *i*, the Romans were compelled to employ the character I both as vowel and as consonant. It follows that at first the two sounds were similar. Consonantal *i* must still have been a semivowel at the time (before Plautus) when *et-iam*, *nunc-iam*, and *quom-iam* became *etĭam*, *nuncĭam*, and *quonĭam*, and when *adiicio*, etc., changed to *adicio*, etc. (for example, *ădiceret*, Plautus *Poen.* 1174). There always continued to be some interchange between consonantal and vocalic *i* in the position after a consonant. Poets of all periods show such forms as *insidi̯antes*, Ennius *Ann.* 436 V., *fluvi̯orum*, Vergil *Georg.* i. 482, *omni̯a*, Vergil *Aen.* vi. 33; since *i* makes position in some of these passages it was certainly a full consonant, and there is no reason to doubt that

[1] Kent, *TAPA*, XLIII, 35 ff.; Carnoy, *TAPA*, XLVII, 145 ff.

it was identical with consonantal *i* of other words. The Romance languages show that in colloquial Latin unaccented *ĭ* (and also *ĕ*) in hiatus regularly became consonantal; for the resulting *y*-sound has combined with certain preceding consonants; for example, *gratia:* Italian *grazia*, French *grâce; diurnus:* Italian *giorno*, French *jour*. Some references to this process in the grammarians and some traces of it in inscriptions will be noticed below, pp. 110 f. The earliest consonantal development of these vowels must have been a semivowel. The date of the change is uncertain.

Greek had no accurate means of transcribing consonantal *i*, and consequently that language cannot furnish conclusive evidence of its pronunciation. It is significant, however, that while consonantal *u* is represented sometimes by vowels (ο, ου, υ) and sometimes by the consonant β, consonantal *i* is almost always represented by ι or, in a very few cases, by ει or η (Εἰόνιος, *IG* xii. 143, Εἰουλίας, xiv. 1323, μαηοῦρος, *IGRRP* i. 1220). Instances of ζ are rare (Ζούλιαι, *IG* xiv. 1349, κόζους 698, 1516, 1910*a*, 2192, etc.). If, then, consonantal *u* was a semivowel, so much the more was consonantal *i* a semivowel.

Cicero and Caesar are cited by the grammarians as authority for writing consonantal *i* double when it stands between vowels.

Quintilian i. 4. 11: Sciat etiam Ciceroni placuisse *aiio Maiiam*que geminata *i* scribere; quod si est, etiam iungetur ut consonans.[1]

Velius Longus vii. 54. 16 ff. K.: Et in plerisque Cicero videtur auditu emensus scriptionem, qui et *Aiiacem* et *Maiiam* per duo *i*

[1] "Let the grammarian also know that Cicero was inclined to write *aiio* and *Maiia* with a double *i;* if this be done the one *i* will be joined to the other as a consonant."

scribenda existimavit (quidam unum esse animadvertunt, siquidem potest et per unum *i* enuntiari, ut scriptum est). Unde illud quod pressius et plenius sonet per duo *i* scribi oportere existimat, sic et *Troiiam* et siqua talia sunt. Inde crescit ista geminatio, et incipit per tria *i* scribi *coiiicit*, ut prima syllaba sit *coi*, sequentes duae *iicit*. Nam si est aliud *iacit*, pro *i* *a* substituitur ut vim vocalis obtineat, manente priore *i* quae consonantis vicem implebat. At qui *Troiam* et *Maiam* per unum *i* scribunt, negant onerandam pluribus litteris scriptionem, cum sonus ipse sufficiat.[1]

Priscian ii. 14. 5 ff. K.: . . . . antiqui solebant geminare eandem *i* litteram et *maiius*, *peiius*, *eiius* scribere, quod non aliter pronuntiari posset quam si cum superiore syllaba prior *i*, cum sequente altera proferretur, ut *pei-ius*, *ei-ius*, *mai-ius;* nam quamvis sit consonans, in eadem syllaba geminata iungi non posset; ergo non aliter quam *tellus*, *mannus* proferri debuit. Unde *Pompeiii* quoque genetivum per tria *i* scribebant, quorum duo superiora loco consonantium accipiebant, ut si dicas *Pompelli;* nam tribus *i* iunctis qualis possit syllaba pronuntiari? Quod Caesari doctissimo artis grammaticae placitum a Victore quoque in *Arte Grammatica de Syllabis* comprobatur.[2]

[1] "And in many particulars Cicero seems to have referred spelling to the standard of hearing; for he thought that *Aiiax* and *Maiia* should be written with double *i* (certain writers observe that there is one *i*, since the words can be actually pronounced with one *i* as they are written). Wherefore he thinks that that which has a tighter and fuller (?) sound should be written with double *i*, so also *Troiia*, and all such words. Then this doubling increases, and in *coiiicit* we begin to write with three *i*'s, so that the first syllable shall be *coi-* and the following two *-iicit*. For, if *iacit* is another word (i.e., if we compare *iacit*), *a* is substituted for *i* to carry the force of the vowel, while the first *i* remains which has the force of a consonant. But they who write *Troia* and *Maia* say that spelling ought not to be burdened with too many letters, since the sound itself is enough."

I do not know what Velius means by *pressius et plenius* in the second sentence. *Plena* is used of the vowel *u* in the passage quoted on p. 26.

[2] "The ancients used to double the same letter *i* and write *maiius*, *peiius*, *eiius*, which could not be pronounced unless the first *i* were spoken with the former syllable and the second with the following

There are very many instances of this orthography in inscriptions (for example, *CIL* ii. 1964. i. 41, 60, ii. 10, 11, 28, 43, 45, iii. 3, iv. 26, 33, v. 6, 13, 17, 22, 24, 43) and in manuscripts. Velius Longus' testimony that the spelling was phonetic is corroborated by the fact that the preceding syllable is long even though it contains a short vowel (*māior*:*măgis*, *cūius* from *quoius*, although it is only short *o* that becomes *u* in unaccented syllables, *Trŏia* from Greek Τροία). There are two reasons for believing that the double consonant in these words was a semivowel rather than a spirant: (1) In *Troia*, *Maia*, *Aiax* the second member of the diphthong in the original language was a semivowel; therefore if Latin consonantal *i* had been a spirant we should certainly have had *Troea*, *Maea*, *Aeax*. The argument holds primarily for the time when these words were borrowed, but it is likely that if the semivowel had become a spirant by classical times the orthography would have been altered, just as Ennius' *Burrus* became *Pyrrhus*. (2) There is an obvious parallelism between the genitives *cuius* (from *quoius*), *huius* (from *hoius*), and the datives *cui* (from *quoi*), *huic* (from *hoic*)—a parallelism which still persisted in the time of Terentianus Maurus, as one sees from his discussion in vi. 348. 772 ff. K. (cited below, p. 66). Since therefore

syllable, as *pei-ius*, *ei-ius*, *mai-ius;* for, although a consonant, it could not be doubled in the same syllable; therefore it had to be pronounced in the same way as *tellus* and *mannus*. Whence they also wrote the genitive *Pompeiii* with three *i*'s, the first two of which they understood as consonants, as if one should say *Pompelli;* for what kind of a syllable could be pronounced with three *i*'s together? This opinion of Caesar's, who was learned in grammatical science, was approved by Victor also in the chapter on syllables in his *Ars Grammatica*."

we cannot pronounce *cui* and *huic* with a spirant (pp. 64 ff.), we must pronounce *cuius* and *huius* with a semivowel; that is, these words contain the diphthong *ui* followed by consonantal *i* as the initial of the second syllable.

There is no reason to suppose that consonantal *i* between vowels differed from consonantal *i* initial; consequently the demonstration that the former was a semivowel holds for the latter also.

It appears from the Romance languages and from the misspellings of late inscriptions and of manuscripts that consonantal *i* came to be identical in sound with *g* before *e* or *i*, with *gy* and *dy* (from *ge*, *gi*, *de*, *di* in hiatus), and with *z*. It is probable that the sound common to all of these was a semivowel. It is quite likely that Sardinian *yungere* (from Latin *iungere*) may have had an initial semivowel throughout its entire history, and Old French *batoyer* (from *baptizare*) a medial semivowel since the third or fourth century.

AE[1]

In our earliest documents we find *ai* instead of classical *ae*, as in *aide* for *aedem*, *CIL* i. 32. The spelling was no doubt adopted from the Greeks of Southern Italy, and at first it certainly had approximately the same value as in Greek—an *a*-sound followed in the same syllable by an *i*-sound. The spelling *ae* began to appear about 200 B.C. (*Saeturni*, *CIL* i. 48, *aedem*, 196–186 B.C., *quaeret*, etc., 198. 12, etc., 122 B.C.) and

[1] Sihler, *PAPA*, XXIX, xl–xliv; Oertel, ap. Lane, *Latin Grammar*, second edition, p. 7; Lindsay, *Short Historical Latin Grammar*, second edition, pp. 13 f.; Sturtevant, *TAPA*, XLVII, 107 ff.

became usual before 100 B.C. We can scarcely escape the conclusion that the change in spelling reflected a change in pronunciation, since no other motive for it can be conceived. Neither can there be doubt about the general nature of the change of sound. If the diphthong had become a monophthong by 200 B.C. the new spelling would have been *e*. The orthography *ae* must reflect merely a more open pronunciation of the second member of the diphthong; the earlier *ai* denoted a diphthong ending in a close *i*, as in Italian *mai*, while the later *ae* denoted a diphthong ending in a more open sound approaching a close *e*, as in English *aisle*, *my*, etc.

In case diphthongal *ai* was followed by consonantal *i*, as in *aio* and *maior* (pronounced *ai-i̯o*, *mai-i̯or*, pp. 45 f.), the second element of the diphthong remained unchanged, as the orthography proves. English furnishes a parallel in such phrases as *my use* [mai ju:s] as contrasted with *my* [mae] in most other phrases. Latin *ais* and *ain* (from *aisne*) retained the original diphthong under the influence of *aio*, etc., supported perhaps by uncontracted *aïs*.

The diphthong *ai* had a very similar history in Oscan. The symbol ꟷ| (transcribed *í*), which represented the open *i*-sound from original *ē* or *ĭ*, and also from *ĕ* before another vowel (pp. 19, 23), was employed to denote the second member of the original diphthong *ai* as in **aídilis, kvaístur, víaí, svaí,** etc. Oscan **aí** must have been similar to Latin *ae*. In case, however, the diphthong was followed by consonantal *i*, its second member is shown by the orthography to have been a close *i* (e.g., **Púmpaiianaí, Maraiieís, Mefitaiiaís**),

precisely as Latin *ai* retained its close *i* in similar circumstances.

Even more significant is the representation of the Oscan diphthong **aí** by *ae* in documents written in the Latin alphabet (*suae*, *aeteis*, *Bansae*). When the Oscans began to use the Latin alphabet, certainly after 200 B.C., Latin *ae* must have represented a true diphthong; for, if it had represented a monophthong or a diphthong scarcely distinguishable from a monophthong, the Oscans would have transcribed their diphthong **aí** by *ai*, as they actually transcribed **úí** by *oi* (**feíhúís** "muris": *eizois* "eis"), although the digraph *oi* was foreign to Latin orthography.

The orthography *aei* (*Caeici*, *CIL* i. 1478, *Caeician*(*us*), 378, *Caeicilius*, 1487, *conquaeisivi*, 551) in the second half of the second century B.C., when *ei* was a common variant for *ī*, must indicate a diphthong. To the same period belongs Lucilius' jest (1130 M.):

Cecilius pretor ne rusticus fiat.

If the monophthongization of *ae* was a mark of rusticity, *ae* must have been a diphthong in urban Latin.

Our knowledge of this rustic *e* for *ae* is derived largely from the passage in Varro's *De Lingua Latina* vii. 96, in which is preserved the Lucilian fragment just cited:

Apud Matium: "obsceni interpres funestique ominis auctor." *Obscenum* dictum ab *scena;* eam ut Graeci aut Accius scribit *scena.* (In pluribus verbis *a* ante *e* alii ponunt, alii non, ut quod partim dicunt ⟨*scaeptrum*, partim⟩ *sceptrum*, Plauti *Faeneratricem*, alii *Feneratricem;* sic *faenisicia* ac *fenisicia*, ac rustici pappum *mesium*, non *maesium;* a quo Lucilius scribit, "Cecilius ⟨pretor⟩

ne rusticus fiat.") Quare turpe ideo *obscaenum* quod nisi in *scaena* palam dici non debet.[1]

In v. 97 of the same treatise Varro refers briefly to the rustic monophthong instead of the diphthong *ae:*

Ircus, quod Sabini *fircus;* quod illic *fedus,* in Latio rure *edus,* qui in urbe (ut in multis) *a* addito ⟨*h*⟩*aedus.*[2]

In the time of Varro, then, as well as in the time of Lucilius, *e* was a familiar rustic variant for the urban diphthong *ae.* As we see from the passage last quoted, the Sabine dialect was here in harmony with rustic Latin; epigraphical evidence shows that Faliscan, Volscian, and Umbrian also had simplified *ai* to *e,* and that the same group of dialects had simplified other diphthongs as well in a way foreign to urban Latin. In this respect several of the old dialects of Latium agreed with the four Italic idioms just mentioned as against Roman usage, e.g., Praenestine *losna*=*luna* from **louksnā*, *CIL* i. 55, *Plotina*=*Plautina*, xiv. 3369, *Ces*(*ula*)=*Caesula* (?), xiv. 3193. We have therefore a dialectic peculiarity which antedates the establishment of the Roman dialect as the standard language of Latium.

[1] "In Matius ⟨we read⟩ '*Obsceni interpres funestique ominis auctor.*' *Obscenum* is derived from *scena;* he writes it *scena* as the Greeks and Accius do. (In a considerable number of words some persons put *a* before *e,* and others do not; as, for example, some say *scaeptrum,* others *sceptrum,* some the *Faeneratrix* of Plautus, others the *Feneratrix;* just so ⟨we hear⟩ *faenisicia* and *fenisicia,* and the country people call an old fellow *mesius,* not *maesius;* wherefore Lucilius writes 'Let's not make the boor Cecilius pretor!') Hence what is foul is *obscaenus* for the reason that it should not be mentioned in public except on the *scaena.*"

[2] "*Ircus,* which the Sabines call *fircus;* what among the Sabines is *fedus* and in rural Latium is *edus,* the city people call *haedus* with the addition of *a,* as in many words."

The passages cited from Lucilius and Varro prove that, even after the urban dialect had become the norm, country people continued to use *ē* where they should have used *ae*. In fact, a few country (i.e., dialectic) words with *ē* for *ae* penetrated the city and gained a foothold in standard Latin. A clear case is *lēvir* = Skt. *devā*, Gk. *δᾱήρ* (from **δαιϝήρ*), whose second vowel is due to the analogical influence of *vir*, "husband," and whose initial *l* for *d* shows that the word is of Sabine origin. The tradition in favor of *ē* is not quite so clear in *sēpes*, *praesēpes*, *praesēpia*, but, as we shall see, the monophthong is supported by the Romance languages. Walde, *s.v.*, thinks that *fēnum* contains an original monophthong, but Varro's evidence in favor of *faenisicia* is supported by Italian *fieno*, whose vowel must represent Latin *ae* or *ĕ*.[1]

Varro's preference of *scaena* to *scena* is supported by the superior manuscript authority (see Sommer, p. 72, and references) and by *scaena*, *CIL* i. 206. 77, 1009. 13, *scaenarium*, i. 1341, *scaenicis*, ii. 1663, and *proscaenium*, ii. 183. That it contained a real diphthong is shown by *scaina*, *ibid.* i. 1280. This word and also *scaeptrum* for Greek *σκῆπτρον* owe their diphthong to an "over-correction"; persons who took pains to say *praetor* instead of *prētor* "corrected" *scēna* into *scaena*.[2]

The rustic *ē* from *ae* was no doubt at first an open *e*, as in Umbrian; but in such words as *sepes* and *fenum*

[1] Other examples in Meyer-Lübke, *Grammaire des langues romanes*, I, 255.

[2] So Walde, *IF*, XXX, 139; Sommer, p. 72. It is impossible to suppose (with Lindsay, p. 42; Claussen, *Rom. Forsch.*, XV, 854; Carnoy, *Latin d'Espagne*, p. 79, and others) that the *ae* of *scaena* and *scaeptrum* was a peculiarly exact method of transcribing Greek *η*. There seems

it ultimately became identical with ordinary *ē* in most of the Roman world; for the two yield the same result in most of the Romance languages. Only in Italian do these words show forms which indicate Latin open *e*. The following table presents the facts:

	Open *e*	Rustic *e* for *ae*		Close *e*
Latin	mĕl	sēpes	fēnum	vērum
Italian	miele	siepe	fieno	vero
French	miel	soif	foin	voire (vērē)
Spanish	miel	seto (sēptum)	heno	vero

A similarly inconsistent development has been observed in three or four other words (see Meyer-Lübke, *loc. cit.*), and we must assume that they too spread over the Roman world in a form which originally belonged to the rural districts of Central and Northern Italy. The inconsistency between Italian and the other Romance languages indicates that the open *e*-sound was permanently retained in the region where it originated, whereas open *ē* (from *ai*) became close *ē* in the city of Rome and in the provinces.

When *ae* became a monophthong elsewhere than in the old Praenestine-Sabine-Umbrian district, it showed affinities with open *ĕ* rather than with close *ē*. Pompeian *graffiti* of the first century A.D. show an extensive confusion of *ĕ* and *ae*, e.g., *etati*, *maeae*, *haberae*, *CIL* iv. 1684.[1]

to be no reason why these two words should be transliterated more scrupulously than other Greek loan-words containing η. That the spelling *ae* in these words was not regarded as an approximation to the Greek form is made perfectly clear by Varro's citation of the spelling with *e*, not only from Accius, but from the Greeks themselves.

[1] Other examples in Hammer, *Roman. Lautwandlungen*, pp. 11 ff.

A few plebeian inscriptions of the city of Rome show that a similar confusion was beginning there also in the first century A.D., e.g., *Clarie* (dat.), *CIL* vi. 5180, *saenatus*, vi. 2066.[1] In the second century the confusion became much more extensive in Rome and appeared in the provinces. Since open ĕ and close ē were customarily written in the same way, the phonetic confusion between ĕ and *ae* led to an occasional graphic confusion between ē and *ae*, e.g., *aegisse*, *CIL* iv. 2413 f., *caeteri*, vi. 1585*b*.

That mistakes in orthography of this latter sort did not reflect a confusion between close ē and *ae* is proved by the fact that the Romance languages keep the two sounds distinct. Latin open ĕ, however, everywhere yields the same result as *ae*. The following forms are typical:

	Open *e*	*ae*	Close *e*
Latin	mĕl	*cae*lum	vērum
Italian	miele	cielo	vero
French	miel	ciel	voire (vērē)
Spanish	miel	cielo	vero

The confusion of *ae* with open ĕ first appears, as we have seen, in Rome and in Pompeii (whose original language was Oscan), both of them in regions which did not share the earlier monophthongization of *ai*. It now appears that while the earlier monophthongization led to a confusion between *ae* and close ē, the later monophthongization led to a confusion between *ae* and open ĕ.

[1] Other examples in Hammer, *Roman. Lautwandlungen*, pp. 11 ff.

It is therefore unlikely that the two processes had any connection with each other.

It remains to fix the date when the monophthongal pronunciation of *ae* made its way into standard Latin.[1] Terentius Scaurus, a contemporary of Hadrian's, is unusually explicit in his remarks on *ae* (vii. 16. 6 ff. K.):

> *A* igitur littera praeposita est *u* et *e* litteris. . . . . Et apud antiquos *i* littera pro ea (i.e., *e* littera) scribebatur, ut testantur *μεταπλασμοί*, in quibus est eius modi syllabarum diductio, ut *pictai vestis et aulai medio* pro *pictae* et *aulae*. Sed magis in illis *e* novissima sonat.[2]

If his ear told Terentius that the second member of the diphthong is *e* rather than *i*, we may be assured that he heard a diphthong.

Various passages in grammarians of the fourth century show clearly that *ae* was a monophthong in standard Latin at that time. We need cite only the following:

> Marius Victorinus vi. 66. 29 ff.: Consimili ratione quaeritur *Orpheus* in metro, ut
>
> Non me carminibus vincat nec Thracius Orpheus,
>
> utrum trisyllabum an disyllabum sit, an idem nomen duplici enuntiatione promatur, aut sine *a* littera, ut *Peleus*, *Pentheus*, aut cum *a*, ut ita declinetur *Orphaeus* ut *Aristaeus*. Visum est

[1] I attach little importance to the evidence of Welsh *praidd* and Gothic *kaisar*.

[2] "Therefore the letter *a* is prefixed to *u* and *e*. . . . . And among the ancients *i* was written for *e*, as is shown by alterations of sound, among others by such distractions of syllables as *pictaï vestis* and *aulaï medio* for *pictae* and *aulae*. But in those words the final sound is more nearly that of *e*."

tamen hoc posse discerni, ut illa sine *a* littera Graeca sit enuntiatio, haec Latina quae per diphthongon effertur.[1]

The frequency of the confusion between *ae* and *e* in inscriptions of the second century inclines one to suppose that the newer pronunciation became a part of approved speech shortly after the time of Terentius Scaurus—perhaps toward the end of the second century.

The orthographical change of *ai* to *ae* in the first half of the second century B.C. reflected a change of the second member of the diphthong from a close *i* (as in Italian *mai*) to a more open sound approaching an *e* (as in English *aisle*). In many parts of Latium *ai* became *ē* in prehistoric times, and this rustic *ē* made its way into urban Latin in a few country words such as *sepes* and *fenum*, and there became a close *ē*, like original Latin *ē*. The monophthongization of genuine Latin *ae*, on the other hand, led to a confusion between *ae* and open *ĕ*. It began in Southern Italy and Rome in the first century A.D., and made its way into the standard speech probably in the latter part of the second century, certainly before the fourth century.

AU

The diphthong *au* was from the earliest times written in the same way as in Greek, and no doubt the Romans borrowed this orthography, with the alphabet, from the

[1] "There is a similar question about *Orpheus* in such a line as:

Non me carminibus vincat nec Thracius Orpheus;

is it a trisyllable or a dissyllable, or is the same noun pronounced in two ways, either without *a*, as *Peleus*, *Pentheus*, or with *a* so that *Orphaeus* is declined like *Aristaeus?* It has seemed nevertheless that this problem can be solved, so that pronunciation without *a* shall be Greek, and that which is expressed by the diphthong shall be Latin.

Greeks of Southern Italy. *Au* was therefore originally similar to Greek *αυ*, and the similarity continued so close that *au* and *αυ* represented each other in loan-words in classical times; for example, Αὔδαξ Παῦλλος, *nauclerus*, *Pausanias*. There can be no doubt that the digraphs *au* and *αυ* were originally phonetic spellings; they represented an *a*-sound followed by a *u*-sound. That diphthong, if accented in Latin, is retained in some of the modern Romance languages, and must have been retained far into the separate history of certain others, as is indicated by the following typical examples:

Latin........	*aurum*	*nausea*	*causa*	*gaudere*	*laurus*	*pausare*
Rumanian....	aur				laur	......
Veglian.......	yaur		kausa	gaudar		......
West Raetian..		nauscha				......
Provençal.....	aur	nausa	kauza	gauzir	laur	pauzar
Portuguese....	ouro		cousa	gouvir	louro	pousar
French.......	or	noise	chose	jouir		poser
Italian.......	oro		cosa	godere		posare
Spanish......	oro		cosa		loro	posar

The *au* of Rumanian, Veglian, West Raetian, and Provençal requires no comment except that in Veglian Latin *ō* has become *au*. Portuguese still shows a diphthong, but has changed the character of it. French normally has *o* for Latin *au*, but the alteration of the initial consonants of *chose* and *jouir* shows that they were followed by the vowel *a* at the time of the palatalization of *c* and *g* before *a* (compare *charbon* from *carbo* with *comte* from *comes*). The change of *au* to *o* in Italian and Spanish therefore took place independently after the separation of the various Romance languages from one another. It is particularly noteworthy that Spanish and Portuguese, ordinarily very close to each other,

show different developments of *au*, and that there is also a divergence of the neighboring and similar Italian and Provençal.

The change of *au* to *ō*, like the change *ae* to *ē*, was a feature of Umbrian (*ote* = Latin *aut*, *toru* = *tauros*), and no doubt of some of the early dialects of Latium as well, although epigraphic evidence of this is lacking. The Romans ascribed to the country people a tendency to say *o* for *au*.

Festus 196. 26 Lindsay: *Orata*, genus piscis, appellatur a colore auri quod rustici *orum* dicebant, ut *auriculas oriculas*. Itaque Sergium quoque quendam praedivitem, quod et duobus anulis aureis et grandibus uteretur, *Oratam* dicunt esse appellatum.[1]

How strong a tendency there was among the uneducated to change *au* to *o*, and also how the reaction against the change led to occasional changes in the reverse direction, appears from an anecdote which Suetonius tells of Vespasian.

Vespasian 22: Et tamen nonnulla eius facetissima extant, in quibus et haec. Mestrium Florum consularem, admonitus ab eo *plaustra* potius quam *plostra* dicenda, postero die *Flaurum* salutavit.[2]

Other words whose original *ō* was changed to *aù* in the effort to speak correctly are *scauria* for Greek

[1] "*Orata*, a kind of fish, is named from the color of gold, which the rustics call *orum*, just as they call *auriculae oriculae;* and so they say that a certain millionaire Sergius was called *Orata* because he wore two large gold rings."

[2] "And yet some excellent jests of his are still told, these among others. When he had been admonished by the consular Mestrius Florus that he should say *plaustra* rather than *plostra*, the next day he greeted the latter as *Flaurus*."

σκωρία in the *Lex Metalli Vipascensis* (*CIL* ii. 5181. i. 47, etc.) of the middle of the first century A.D., and *austia* for *ostia*, *CIL* i. 1463.

A considerable number of words with *o* for *au* have been recorded in one way or another. Every schoolboy has heard that the democratic P. Claudius Pulcher preferred to call himself *Clodius*. Cicero, in his letters, uses the forms *loreolam*, *Att.* v. 20. 4, *pollulum*, *Fam.* xii. 12. 2, etc. Catullus uses the form *oricilla* in one of his most colloquial poems (xxv. 2). Inscriptions record *loreto*, *CIL* i. i², p. 240, l. 13, *copo*, iv. 241, 1048, etc., *Olus*, 1375, etc., *Plostralibus*, v. 7862, *Polla*, *IG* xiv. 598, 2146.[1] Greek inscriptions of imperial times show such forms as *Ὀγούστω*, *CIL* iv. 2993 *y*, *Ὦλος*, *IG* iii. 1091. i. 52, etc., *Ὠρούγκω*, 21, *Κωπ⟨ώνιος⟩*, 1101, *Πωλίττα*, 61*A* iii. 27, *Πώλλης*, 731, *Σωφήϊος*, 796.

In some cases the form with *o* became firmly established in the language. The compound of *plaudo* with *ex* appears only in the form *explodo*, and *complodo* is very much more common than *complaudo*. The usual word meaning "washed" is *lotus*, while the genuine Roman form *lautus* is used in a derived sense, "neat, elegant."

It is often difficult to decide whether the original form of a word had *au* or *ŏ*. It appears from Festus, p. 274. 9 ff. Lindsay, and Paulus' epitome, p. 275. 1 ff., that the comic poet Maccius bore an Umbrian nickname *Plotus*, "flat-footed," which was afterward changed into Latin as *Plautus;* but we are not sure whether *Plautus* is a genuine Latin word with original *au* or a false "correction" of dialectic *Plōtus* with original *ō*.

[1] Other examples in Hammer, *Roman. Lautwandlungen*, pp. 17 f.

OE

The diphthong *oe* is usually the representative of Greek *οι*, as in *Oedipus*. In a few Latin words it results from the contraction of *o* with *e* or *i*, as in *coetus* from *co-itus*, *coepere coepi* from **co-ipere co-ēpi*. In a few others it comes from an earlier *oi* which was retained when *oi* regularly changed to *ū;* for example, *poena* from Greek *ποίνη* (but *punio*), *Poenus* related to Greek *Φοῖνιξ* (but *Punicus*), *foedus*. Our earliest documents show *oi* (*Oinomavos*, *CIL* i. 60, *foideratei*, 196. 2); the change to *oe* coincided with that of *ai* to *ae*, and doubtless represented a parallel change in pronunciation. Both spellings, then, were probably phonetic, and the first element of the diphthong should be given the sound of Latin *ŏ* or possibly *ō;* the classical diphthong was similar to that of English *oil*. That *oe* was still a diphthong in Lucretius' time is made probable by his use of *coepit* as a trisyllable (iv. 619):

Siquis forte manu premere ac siccare coepit.

In the Romance languages *oe* has the same development as *ē*, thus differing from *ĕ* and *ae*.

Latin..........	*poena*	vērus	plēnus	mĕl	*cae*lum
Italian.........	pena	vero		miele	cielo
French.........	peine		plein	miel	ciel
Spanish........	pena	vero		miel	cielo

We must conclude, therefore, that *oe* became close *e* whereas *ae* became open *e*. The confusion between *oe* and *e* appears in inscriptions of the first century A.D.; for example, *Phebus*, *CIL* iv. 1890, *ceperint*, ii. 1964. 4. 27 (81–84 A.D.). Grammarians of the seventh century

give rules for the distinction between *cepit* and *coepit*, etc. We do not know at what date between the first and seventh centuries the monophthongal pronunciation was adopted by the standard speech.[1]

EU[2]

Aside from its use to represent Greek *ευ*, as in *Europa*, *euge*, the diphthong *eu* occurs in the interjections *heu* and *heus* and as the product of contraction in *neuter*, *neutiquam*, *ceu*, *neu*, and *seu*.

That the interjection *heu* was similar in sound to dissyllabic *eo* in the fifth century A.D. appears from a paragraph in a work on homonyms and synonyms by Agroecius (vii. 122. 11 ff. K.):

> *Eo* verbum primae personae facit, *eo*, *is*, *it*. *Eho* adverbium interrogantis est, ut "*Eho*, Parmenonem nosti?" *Eo* item adverbium loci, ut si dicas "*eo* redactus sum." *Heu* interiectio dolentis est, *eu* laudantis; Terentius, "*Eu*, *Phormio*." *Heus* adverbium vocantis, *heu* respondentis. *Eho* est interiectio iubentis vel hortantis; Terentius, "*Eho*, puer, curre ad Bacchidem."[3]

The conjunctions *ceu*, *neu*, and *seu* come from *ceive*, *neive*, and *seive*; after *ei* had become an unusually close *ē*

[1] It is possible that an intermediate stage between *oe* and *e* was *öe* or the like; but we do not know when this stage was passed or how long it lasted, or even that such a pronunciation ever existed in the standard language. The use of *oe* for Greek *ῡ* in *Moesia* for Μυσία, *lagoena* for λάγυνος, *coloephia* for κωλύφια, etc., is not valuable evidence; we are not quite certain of the pronunciation of *υ*, and it is unlikely that these exceptional transcriptions were exact.

[2] See Birt, *Rh.M.*, XXXIV, 1 ff.

[3] "*Eo* makes a verb of the first person. . . . . *Eho* is an adverb of interrogation. . . . . *Eo* is also an adverb of place. . . . . *Heu* is an interjection of grief, and *eu* of praise. . . . . *Heus* is an adverb of calling, *heu* of replying. *Eho* is an interjection of ordering or urging." . . . .

(which in *nīve* and *sīve* has regularly changed to *ī*), the short final vowel was lost under certain conditions, whereupon *u* consonant became the final member of a diphthong and *ē* was shortened. It is clear that at first the diphthong consisted of an *e*-sound followed by a *u*-sound, and the similarity of the orthography of these words with that of *heu* indicates that the diphthong remained unchanged. That *neuter*, when dissyllabic, contained a similar diphthong appears from its variation between the dissyllabic and the trisyllabic pronunciation. Consentius says (v. 389. 28 f. K.):

> Item si aliquis dicat *neutrum* disyllabum, quod trisyllabum enuntiamus, barbarismum faciet.[1]

Nevertheless it has to be scanned as a dissyllable in Vergil *Ciris* 68:

> Sive est neutra parens, atque hoc in carmine toto.

In Greek loan-words also *eu* is shown to have been a diphthong similar to dissyllabic *eu* by resolutions of final *eus* such as the following:
Accius 668 R. (trimeter):

> Iam hanc úrbem férro vástam fáciet Péleus.

Anthologia Lat. 234. 20 Riese (pentameter):

> Optavit mortem Theseus Hippolyto.

Phaedrus v. 1. 1 M. (trimeter):

> Demétriús qui díctus ést Phaléreús.

In fact the dactylic poets seem to have been at some pains to place vowels after words ending in *eus*, so that

[1] "Likewise if any one should speak *neuter* as a dissyllable, which we pronounce as a trisyllable, it will be a solecism."

they might be read with resolution, as in Vergil *Ecl.* viii. 56:

> Orpheus in silvis, inter delphinas Orion.

Still there are many places where final *eus* has to form a single syllable, as in Vergil *Ecl.* viii. 55:

> Certent et cycnis ululae, sit Tityrus Orpheus,

and in Horace *Carm.* i. 16. 13 (Alcaic):

> Fertur Prometheus, addere principi.

The frequent resolution of *eu* in these words explains the occasional late spelling *aeus*, which is mentioned by Marius Victorinus vi. 67. 2 K. (cited on p. 55).

In Greek loan-words other than those ending in *eus* the combination *eu* always represented a single syllable. Before a vowel *eu* seems ultimately to have developed a consonantal glide which is indicated by epigraphical forms such as *Euvagrius*, *CIL* v. 1198, *Euvanti*, ix. 6083. 167, *Euvarist(i)*, v. 8110. 80, *Euvelpisto*, xiv. 582, *Euvenus*, ii. 4534, ix. 2903, *Euvodius*, v. 2310, add., viii. 1566, *Euvodia*, x. 3525, xiv. 887, *Eubodius*, xiv. 231. (Compare *Troiia*, etc., pp. 45 ff.) Ecclesiastic and scholastic tradition preserves a record of this pronunciation in English *evangel*, *Evadne*, *Evander*, and similar forms in other modern languages.

UI[1]

The diphthong *ui* occurs in the genitives *cuius* and *huius*, the datives *cui* and *huic*, the interjection *hui*, and in contractions such as *flŭito* in Lucretius iii. 189 and iv. 77. The last-mentioned form certainly combined

[1] Husband, *TAPA*, XLI, 19 ff.; Sturtevant, *ibid.*, XLIII, 57 ff.

vocalic *u* and vocalic *i* in a single syllable.[1] The interjection *hui* is undoubtedly to be treated in the same way as *cui* and *huic*.

There is great probability that *cui* and *huic* were pronounced in a manner similar to that of the similarly spelled genitives, especially since the two cases are alike in history as well as in spelling; early Latin had genitives *quoius* and *hoius* (also *quois* and *hois*) beside the datives *quoi* and *hoic*. Since, therefore, we cannot pronounce *cuīus* [kwi:us] and *huīus* [hwi:us] without separating these forms from their historical predecessors and from the parallel genitive *eius*, we must pronounce *cui* and *huic* with a diphthong.[2]

On the other hand, the difference in spelling between nominative *qui* and dative *cui* must indicate a difference of pronunciation. Furthermore, if we pronounce *cu̯ī* [kwi:], this is the only word in the language in which approved spelling employed the letters *cu* in the value of *qu*.

The alternation with a dissyllabic pronunciation, which led us to regard *ui* in *fluito* as a diphthong, is paralleled in the case of *cui* and *huic*, in view of such lines as Seneca *Troad.* 852 (Sapphic):

> Mittat et donet cuicumque terrae,

and Statius *Silvae* i. 1. 107:

> Laetus huic dono videas dare tura nepotes.

[1] This is not intended as an expression of opinion on the moot question whether the second member of a falling diphthong is a vowel or a consonant. It is certainly true that *i* in *flŭĭto* is as much like *i* of *flu̯ĭto* as is possible under the circumstances. For our purposes this may be called a vowel.

[2] Compare the converse argument above, p. 48.

If *u* may function as a vowel in these passages it is doubtless a vowel also where the words are monosyllabic.

That *huic* begins with an aspirated vowel rather than with a consonant is clearly shown by the fact that elision occurs before it, as in Vergil *Aen.* v. 849:

Ignorare iubes? Mene huic confidere monstro?

We have besides an explicit statement by Terentianus Maurus that *u* in *huius* and *huic* is not a consonant (vi. 348. 789 ff. K.):

(H) sola nec vocalis usum nec tuetur consonae,
tempus aut ministrat ullum brevibus usquam syllabis;
et tamen vim consonantis adimit, una in syllaba
praedita est quotiens duabus *u* et *i* vocalibus.
Huius aut *huic* solemus nam frequenter dicere;
u digammon esse nunc iam non sinit nec consonam,
esse quam semper necesse est cum carens spiramine
ante vocalem locatur, ut *vigor*, *valens*, *vetus*.[1]

The other passages in which the Romans discuss the value of *ui* in *cui* and *huic* are extremely difficult. It will be worth while to cite only four of them.

Quintilian i. 7. 26, 27: Nostri praeceptores *servum cervum*que *u* et *o* litteris scripserunt, quia subiecta sibi vocalis in unum sonum coalescere et confundi nequiret; nunc *u* gemina scribuntur ea ratione quam reddidi. Neutro sane modo vox quam sentimus efficitur. Nec inutiliter Claudius Aeolicam illam ad hos usus litteram adiecerat. Illud nunc melius, quod *cui* tribus quas

[1] "*H* alone has the use neither of a vowel nor of a consonant, and does not add any quantity to short syllables anywhere; and yet it takes away the consonantal force whenever it is prefixed to the two vowels *u* and *i* in one syllable. For we often say *huius* or *huic;* but now *h* no longer permits *u* to be digamma, which it always must be when without aspiration it is placed before a vowel, as *vigor*, *valens*, *vetus*." Line 791 must be interpreted according to lines 795 f.; initial *u* before a vowel is regularly a consonant, but not in the initial group *hui*.

praeposui litteris enotamus, in quo pueris nobis ad pinguem sane sonum *q* et *u* et *o* et *i* utebantur, tantum ut ab illo *qui* distingueretur.[1]

The reason why the spelling *cui* is better than the spelling *seruus* seems to be that in the latter word the first *u* stands for a consonant, while in *cui u* is a vowel. Terentianus Maurus vi. 347. 760 ff. K.:

Nec potest et hoc liquere, an *i* putemus consonam,
longa *cui super* paretur ceu duabus consonis;
alteram quia consequendo semper *i* vocalis est,
tertiam et casus sequentes esse vocalem docent;
imo si nunc *u* putamus esse vocalis soni,
i magis vocalis esse iudicanda est subsequens.
Numquid hanc diphthongon ergo ex *u* et *i* sic dicimus,
non ut *u* nunc sit Latina, sed magis Graecum sit *υι*,
γυῖα cum dicunt et *υἷας*, tale quid *cui* ut sonet
temporum et per se duorum non requirat consonam,
cui super sed tale fiat quale dudum *trans mare*,
longa cum reddit vacantes quae simul sunt consonae?
An magis *cuii* nos oportet per duas *i* scribere,
quia sequens casus videtur hoc sonare, qui facit
cuius (ed. pr. *quius*) ut *Troia* atque *Maia* de tribus vocalibus,
cui super nil ut iuvetur a propinqua consona,
quando *cuius* longa prior est facta, cum sit consonans?
Haec putavi colligenda; tu sequere quod voles.[2]

[1] "Our teachers wrote *servus* and *cervus* with the letters *u* and *o*, because a vowel following itself cannot combine and fuse into one sound; now double *u* is written on the principle which I have stated. In neither way to be sure is the word which we hear exactly represented. Nor was it without advantage that Claudius introduced the Aeolic letter for such uses. The following innovation is much better, that we spell *cui* with the three letters which I have set down, in which, when we were boys, in order to represent what is, I grant you, a full sound they spelled *quoi* merely that it might be distinguished from *qui*."

[2] "And we cannot settle this question either, whether we should think that *i* is a consonant and the long syllable *cui* in *cui super* is produced as if by two consonants; for *i* following another vowel is always

With these words Terentianus closes his discussion of *ui* in *cui*. He has not been able to reach a certain conclusion in the more than one hundred lines devoted to the topic, but he leaves us these alternatives; either *ui* is a diphthong or *u* is a vowel and *i* is a consonant. These two solutions of the problem are really one; for consonantal *i* before an initial consonant of the next word would be indistinguishable from the second member of a diphthong; and, conversely, a diphthongal *ui* before an initial vowel of the next word would, if not elided, develop after it a consonantal glide beginning with the *i*-position, or else the second member of the diphthong would become consonantal (*cui-i̯alteri* or *cu-i̯alteri*).

Audax vii. 329. 4 f. K.: . . . . Concurrentibus inter se vocalibus duae syllabae in unam quasi per diphthongon contrahuntur, ut "*cui* non dictus Hylas puer."[1]

Priscian ii. 303. 11 ff. K.: Ergo si *Pompeius* et *Vulteius* trisyllaba sunt in nominativo, necessario in vocativo disyllaba

a vowel, and the case-forms which follow show that the third letter of the word is a vowel; in fact, if we think now that *u* has the vowel sound, the following *i* must all the more be considered a vowel. Shall we then perhaps say that this is a diphthong consisting of *u* and *i*, not in such a way that *u* is a Latin letter but rather the diphthong is Greek *υι* when they say *γυῖα* and *υἱας*? Then *cui* would have a similar sound and, having two morae in itself, would not need a consonant, while *cui super* would become such a phrase as *trans mare*, in that a long vowel renders otiose the accompanying consonants. Or should we rather write *cuii* with double *i*, because this seems to be the sound of the next case, which forms *cuius* like *Troia* and *Maia* with three vowels? Then *cui super* would not be helped at all by the neighboring consonant, because the first syllable of *cuius* has been made long by having a consonant of its own. I thought I ought to mention these considerations; follow whichever theory you choose."

[1] "When two vowels come together, two syllables are contracted into one as if by a diphthong, for example, *cui non dictus Hylas puer*."

esse debent, quod non potest fieri nisi *i* loco consonantis accipiatur. Unde illud quoque possumus scire quod bene *cui* pro monosyllabo accipiunt metrici et *huic*.[1]

Audax seizes the first horn of Terentianus' dilemma, and Priscian the second.

The notices which the Romans have left as to the pronunciation of *cui* and *huic* accord with the indications furnished by orthography and prosody. The words undoubtedly contained the sound of vocalic *u* followed in the same syllable by the sound of *i*.

OI, EI, etc.

The diphthongs *oi* and *ei* occur in classical Latin only as the result of contraction in such words as *proinde*, *proin*, *deinde*, *dein*. That these contained real diphthongs appears from the occasional use of *proin* and *dein* as dissyllables. Similarly we learn that monosyllabic *dehinc* had a diphthong from its use as a dissyllable in Vergil *Georg*. iii. 167:

> Cervici subnecte; dehinc, ubi libera colla.

Early Latin *e͡i* and *quo͡i*, *e͡is* and *quo͡is* (dative and genitive of *is* and *quis*), are shown to contain diphthongs by their parallelism with *eius* and *quoius*. *Re͡i*, the monosyllabic genitive of *res*, was a similar contraction and no doubt had a diphthong. Of the same general character are instances of synizesis, as such contractions are often called; for example, *aure͡i*, *aure͡is*, *re͡ice*, *de͡hiscas*, *alve͡o*, *e͡odem*, *aure͡a*, *Orphe͡a*, *a͡in*.

[1] "Therefore if *Pompeius* and *Vulteius* are trisyllabic in the nominative, they must necessarily be dissyllabic in the vocative, which is impossible unless *i* be taken as a consonant. Wherefore we can understand this too, that the students of metric do well in taking *cui* and *huic* as monosyllables."

H[1]

The approximate character of Latin *h* is fixed by its frequent description as *aspiratio* (citations below), and by its correspondence with the Greek rough breathing in loan-words (*Homerus*, *hydropicus*). That *h* was a weak sound is shown by its total lack of effect upon prosody. Plautus, to be sure, admits hiatus before initial *h*, but so he does also before initial vowels without aspiration.

From the time of our earliest records Latin *h* was an unstable sound. Some Latin words which must once have possessed it show no trace of the sound in our documents; for example, *anser*[2]:Sanskrit *hamsas*, English *goose*, *lien*:Sanskrit *plīhā*, *meio*:Sanskrit *mehati*. Other words have an *h* which did not originally belong to them, as *humerus*:ὦμος, *ahenus* from **aies-nos*:*aes*, Sanskrit *ayas*, Gothic *aiz*. In the majority of words, however, a correct tradition as to the use of *h* was preserved in classical literature except medially after consonants (*diribeo* from **dis-habeo*) and between like vowels (*bīmus* from **bi-himus*, *nēmo* from **ne-hemo*). Apparently the sound had been completely lost by some speakers, perhaps the rustics and the lower classes in the city, but it was retained by the upper classes; *lien* and *meio* are from the language of the streets and *anser* is a country word.

In classical times the proper use of *h* was a mark of culture, and correctness in this matter was carefully

[1] Birt, *Der Hiat bei Plautus und die lateinische Aspiration bis zum zehnten Jahrhundert*, Marburg, 1901; Lindsay, *The Captive of Plautus* (London, 1900), p. 45.

[2] There is a bare possibility that the word lost its *h* by the analogy of *anas*.

taught in the schools. By this means the sound was retained in standard Latin so persistently that the character has been reintroduced into some modern Romance words (French *herbe*, *homme*, Spanish *haber*, *hombre*). In vulgar Latin *h* seems to have been lost completely in Pompeii in the first century A.D., and not much later everywhere in the empire. The Romance languages contain no trace of it except in the scholastic orthography just mentioned.

The Greek aspirates were originally represented by Latin *p*, *t*, and *c*, as in *puniceus*, *tus*, *calx;* but during the latter part of the second century B.C. it became fashionable to represent the sound more accurately by *ph*, *th*, and *ch*, and educated people were now careful to pronounce Greek loan-words correctly. Consequently the proper use of the Greek aspirates came to be a further mark of culture, which uneducated persons tried with indifferent success to master. As we shall see (p. 170), the Greek aspirates were voiceless mutes followed by a puff of breath.[1] Even in standard Latin the aspirates seem to have been similar enough to the non-aspirate mutes so that alliteration with the latter was worth while. Horace *Carm*. i. 7. 3 f.:

> Moenia vel Baccho Thebas vel A*p*olline Del*ph*os
> insignis aut *Th*essala *T*emple.

Vergil *Aen*. i. 714:

> *Ph*oenissa et *p*ariter *p*uero donisque movetur.[2]

[1] English *k*, *t*, and *p* are aspirates, while the corresponding French sounds are not. The Greek and Latin aspirates probably had a stronger puff of breath than any English sounds.

[2] Dr. Alice F. Braunlich, who has studied this matter for me, finds in Vergil, *Aeneid*, Horace, *Carm*., and Propertius about twice as many cases of apparent alliteration between *ph* and *p* as between *ph* and *f*.

Many, in their anxiety to employ the fashionable sound, introduced aspirated consonants (*ph*, *th*, *ch*) into genuine Latin words, and in a few cases these new forms became usual. The aspiration, however, was ultimately lost; the Romance languages do not preserve it.[1] Various difficulties of these Roman cockneys are illustrated by the following passages:

Catullus lxxxiv:

> *Chommoda* dicebat, si quando *commoda* vellet
> dicere, et *insidias* Arrius *hinsidias*,
> et tum mirifice sperabat se esse locutum,
> cum quantum poterat dixerat *hinsidias*.
> Credo, sic mater, sic liber avonculus eius,
> sic maternus avos dixerat atque avia.
> Hoc misso in Syriam requierant omnibus aures;
> audibant eadem haec leniter et leviter,
> nec sibi postilla metuebant talia verba,
> cum subito adfertur nuntius horribilis,
> *Ionios* fluctus, postquam illuc Arrius isset,
> iam non *Ionios* esse, sed *Hionios*.[2]

[1] Sommer, pp. 192 f., thinks that *h* between vowels ceased to be pronounced by the beginning of the second century B.C.; but this seems unlikely in view of the persistent spellings *mihi*, *nihil*, *traho*, etc. Sommer admits that it was probably regarded as correct to pronounce medial *h*.

It is possible that other factors than Greek influence contributed to the aspiration of genuine Latin *p*, *t*, and *c* (cf. Sommer, pp. 199 ff.); but Greek influence alone could easily start the aspiration of Latin mutes, and the new fashion might soon spread so far that even a Cicero would think best to yield to it. For the psychological process see Sturtevant, *Linguistic Change*, pp. 79 ff. Seelmann's suggestion (p. 253) that neighboring liquids contributed to the aspiration takes no account of Cicero's *Cethegus*, *Otho*, *Matho*, and *Caephio*, and that such an influence could cause the aspiration of *chorona*, *chenturio*, etc., is most unlikely.

[2] "Arrius said *chommoda* whenever he meant *commoda*, and *hinsidiae* for *insidiae*, and he hoped he had spoken unusually well when he had said *hinsidiae* with all his might. I dare say that is the way his mother and that free-born uncle of his and his mother's father and mother used to

Cicero *Or.* 160: Quin ego ipse, cum scirem ita maiores locutos esse, ut nusquam nisi in vocali aspiratione uterentur, loquebar sic ut *pulcros*, *Cetegos*, *triumpos*, *Cartaginem* dicerem; aliquando idque sero, convicio aurium cum extorta mihi veritas esset, usum loquendi populo concessi, scientiam mihi reservavi. *Orcivios* tamen et *Matones*, *Otones*, *Caepiones*, *sepulcra*, *coronas*, *lacrimas* dicimus, quia per aurium iudicium licet.[1]

Quintilian i. 5. 19–21: Illa vero non nisi aure exiguntur quae fiunt per sonos; quamquam per aspirationem, sive adiicitur vitiose sive detrahitur, apud nos potest quaeri an in scripto sit vitium, si *h* littera est, non nota. Cuius quidem ratio mutata cum temporibus est saepius. Parcissime veteres usi etiam in vocalibus, cum *aedos ircos*que dicebant; diu deinde servatum ne consonantibus aspirarent, ut in *Graccis* et in *triumpis*. Erupit brevi tempore nimius usus, ut *choronae*, *chenturiones*, *praechones* adhuc quibusdam inscriptionibus maneant, qua de re Catulli nobile epigramma est. Inde durat ad nos usque *vehementer* et *comprehendere* et *mihi;* nam *mehe* quoque pro *me* apud antiquos tragoediarum praecipue scriptores in veteribus libris invenimus.[2]

Quintilian implies that the words cited in the final sentence were not pronounced with aspiration. In

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talk. After he had been sent to Syria everybody's ears had a rest; they heard those same mistakes in mild and gentle form, and they were not afraid of such words thereafter, when suddenly comes frightful news: the Ionian waves, since Arrius arrived there, are no longer Ionian, but Hionian."

[1] "Since I knew that our ancestors spoke so as to aspirate no sound but a vowel, I used to speak so as to say *pulcer*, *Cetegi*, *triumpi*, *Cartago;* finally after a long time, when the truth had been wrested from me by the clamor in my ears, I surrendered to the public in my habit of speech, and kept my knowledge for myself. Nevertheless I say *Orcivii*, *Matones*, *Otones*, *Caepiones*, *sepulcra*, *coronae*, *lacrimae*, because the criterion of hearing permits it."

[2] "Those faults which are committed in pronunciation are judged only by the ear; though as to the aspiration, whether it be added or retrenched, in variation from common practice, it may be a question

all of them except *mihi*, *h* stood between like vowels from the beginning of our records, and in *mihi* also from about 150 B.C.

Gellius ii. 3. 1–4: *H* litteram sive illam spiritum magis quam litteram dici oportet, inserebant eam veteres nostri plerisque vocibus verborum firmandis roborandisque, ut sonus earum esset viridior vegetiorque; atque id videntur fecisse studio et exemplo linguae Atticae. Satis notum est Atticos ἰχθύν et ἵππον et multa itidem alia contra morem gentium Graeciae ceterarum inspirantis primae litterae dixisse. Sic *lachrumas*, sic *sepulchrum*, sic *ahenum*, sic *vehemens*, sic *incohare*, sic *helluari*, sic *halucinari*, sic *honera*, sic *honustum* dixerunt. In his enim verbis omnibus litterae seu spiritus istius nulla ratio visa est, nisi ut firmitas et vigor vocis quasi quibusdam nervis additis intenderetur.[1]

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with us whether it be a fault in writing; if *h* indeed be a letter, and not merely a mark. The treatment of this sound has often changed with time. The ancients used it very sparingly even before vowels, as they said *aedi* and *irci;* and it was long afterwards withheld from conjunction with consonants, as in *Gracci* and *triumpi*. But suddenly an excessive use of it became prevalent, so that *choronae*, *chenturiones*, *praechones* are still to be seen in certain inscriptions; on which practice there is a well-known epigram of Catullus. Hence there remain even to our times *vehementer*, *comprehendere*, and *mihi*, indeed among the ancient writers, especially those of tragedy, we find also in old copies *mehe* for *me*."

[1] "Whether *h* should be called a letter, or a breathing rather than a letter, the ancient Romans inserted it in many words to establish and strengthen them, so that their sound should be fresher and more vigorous; and they seem to have done this from study of the Attic dialect and according to this precedent. It is well known that the Attic Greeks pronounced ἰχθύς, ἵππος, and likewise many other words with aspiration of the first letter contrary to the practice of the other nations of Greece. Thus the ancients said *lachrumae*, *sepulchrum*, *ahenus*, *vehemens*, *incohare*, *helluari*, *halucinari*, *honera*, *honustus*. In all these words, in fact, there seems to have been no reason for that letter or breathing, except that the firmness and strength of the sound should be increased as by the addition of what may be called sinews."

Augustine *Confessiones* i. 18: Si contra disciplinam grammaticam sine adspiratione primae syllabae *ominem* dixerit, displiceat magis hominibus quam si contra tua praecepta hominem oderit, quum sit *homo*.[1]

S[2]

The most important ancient descriptions of *s* are the following:

Terentianus Maurus vi. 332. 239 ff. K.:

> Mox duae supremae (*s* and *x*)
> vicina quidem sibila dentibus repressis
> miscere videntur; tamen ictus ut priori
> et promptus in ore est agiturque pone dentes,
> sic levis et unum ciet auribus susurrum.[3]

Marius Victorinus vi. 34. 16 ff. K.: Dehinc duae supremae, *s* et *x*, iure iungentur. Nam vicino inter se sonore attracto sibilant rictu, ita tamen si prioris ictus pone dentes excitatus ad medium lenis agitetur.[4]

Martianus Capella iii. 261: *S* sibilum facit dentibus verberatis.[5]

Cledonius v. 28. 1 ff. K.: *S* . . . . sibilus magis est quam consonans.[6]

[1] "If contrary to grammar he should say *omo* without aspiration of the first syllable, he would displease men more than if contrary to Thy precepts he should hate man in spite of his being man."

[2] Jones, *CR*, VII, 6 f.

[3] "Then the final letters in the list, *s* and *x*, seem to cause a similar whistling against the teeth; still, just as the impulse of *s* begins at once in the mouth and takes place behind the teeth, so it is smooth and brings to the ears an unchanging whisper."

[4] "Then the final letters in the list, *s* and *x*, will properly be joined. For with similar sounds they whistle through a contracted opening; provided, nevertheless, that the impulse of the former begins behind the teeth and is gently driven toward the middle."

[5] "*S* makes a whistling by lashing the teeth."

[6] "*S* is a whistle rather than a consonant."

The words *sibilo*, *exsibilo*, and *sibilus* properly indicate a whistle, and the speech-sound nearest to a whistle is the hissing sound of a voiceless *s*. The sound may be produced with the tip of the tongue against the lower teeth, as in French, or with the tip of the tongue against the upper gum, as in English. The phrases *dentibus repressis* and *dentibus verberatis* in the ancient descriptions of the sound indicate the former articulation.

That the sound was really voiceless, as the word *sibilus* implies, is indicated by several linguistic phenomena. In early Latin the voiced sibilant between vowels became *r* (Latin *ero*:Oscan **ezum**, *dir-imo*:*distineo*), and the voiced sibilant before a consonant was lost (*di-numero*, *di-ripio*, *di-vido*); the *s* which remained was at that time undoubtedly voiceless. A voiced consonant which came to stand before *s* became voiceless in *nupsi*:*nubo*, *maximus*:*magis*, *rexi*:*rego*, while the *bs* of *plebs*, *urbs*, *absum*, *obsequor*, *abs*, etc., was pronounced *ps* (p. 113). The labial consonant which was sometimes developed between *m* and *s* was the voiceless *p*, as in *sumpsi* and *hiemps*, in spite of the fact that *m* was a voiced sound.[1] During the Roman period Greek had both a voiced and a voiceless sibilant (ζ and σ), and σ was regularly used to represent Latin *s*, as in Σύλλας, Σουλπίκιος, Καῖσαρ. Gothic of the fourth century A.D. also possessed both *s* and *z*, and consistently employed *s* to represent Latin *s*, as in *kubitus*, *Kaisar*, *sakkus*, *sigljo* (*sigillum*), and *suljo* (*solea*). Intervocalic *s* is generally voiceless in Spanish, southern Italian, and

[1] The argument assumes the voiced character of the liquids, nasals, and the mutes *b*, *d*, and *g*, and the voiceless character of *p*, *t*, and *c*. On the validity of this assumption, see below, pp. 91 ff.).

Rumanian; the voicing of intervocalic *s* in French and other Romance languages must therefore have begun in the separate history of those idioms.

Latin *s* was, then, a voiceless sibilant, probably of about the same character as French *s*.

In early Latin final *s* after a short vowel was frequently omitted in writing, and it often failed to make position before an initial consonant in the early poets. The matter is mentioned several times by the Romans.

Cicero *Or.* 161: Quin etiam, quod iam subrusticum videtur, olim autem politius, eorum verborum, quorum eaedem erant postremae duae litterae quae sunt in *optumus*, postremam litteram detrahebant, nisi vocalis insequebatur. Ita non erat ea offensio in versibus quam nunc fugiunt poetae novi. Sic enim loquebamur:

"Qui est omnibu' princeps"

non *omnibus princeps*, et:

"Vita illa dignu' locoque"

non *dignus*.[1]

Quintilian ix. 4. 38: Quae fuit causa et Servio, ut dixi, subtrahendae *s* litterae quotiens ultima esset aliaque consonante susciperetur; quod reprehendit Luranius, Messala defendit. Nam neque Lucilium putant uti eadem ultima, cum dicit "Aeserninu' fuit" et "dignu' locoque"; et Cicero in *Oratore* plures antiquorum tradit sic locutos.[2]

[1] "In fact, from those words whose last two letters were the same as in *optimus* they used to take away the last letter unless a vowel followed, a pronunciation which now seems rather boorish but was once the more fashionable. And so that stumbling block in versification which our modern poets try to avoid did not exist. For we said, *Qui est omnibu' princeps*, not *omnibus princeps*, and *Vita illa dignu' locoque*, not *dignus*."

[2] "And this, as I have said, was Servius' reason for taking away *s* whenever it was final and followed by another consonant; which practice Luranius blames and Messala defends. For they think that

Final *s* was retained, therefore, after long vowels, and after short vowels too, if the next word began with a vowel. During Cicero's lifetime the fuller antevocalic forms came to be used before consonants also. In early inscriptions *s* is rarely omitted except in the nominative of the second declension. In the Pompeian inscriptions, full as they are of mistakes, final *s* is usually retained. Only in the later imperial inscriptions do we find every final *s* tending to fall, and even at that time the tendency was confined to parts of the empire; Gaul and Spain did not share in it. Under these circumstances it is unlikely that the early weakness of final *s* after a short vowel has any connection with the loss of final *s* in most of the Romance languages.

Liquids and Nasals

The ancients frequently grouped *l*, *m*, *n*, and *r* together as *liquidae* (Marius Victorinus vi. 6. 18 ff. K., etc.), while modern grammarians usually confine the term to *l* and *r*. All four sounds are in most languages voiced, except before and after voiceless sounds. The very probable assumption that this was the case in Latin also is confirmed by the tradition of the schools and by the Romance languages. Furthermore many of the phonetic processes in which *l*, *m*, *n*, and *r* played a part were those of voiced sounds. Before verbs beginning with these sounds the prefixes *ab* and *ad* took the form which was usual before voiced sounds, as in *ablatus*,

Lucilius does not retain final *s* when he says '*Aeserninu' fuit*' and '*dignu' locoque*'; and Cicero in his *Orator* records that the majority of the ancients spoke thus."

abnuo, *abruptus*, *admitto*. Before *n*, *c* became *g* previous to the change into the velar nasal, as in *dignus*, a derivative of *decet* (p. 89). Still more significant is the loss of *s* (which had become *z*) before these sounds, as in *diligo*, *dimitto*, *dinumero*, *diripio*. On the question of voiced consonants in general, see below, pp. 91 ff.

L[1]

A consistent tradition assigns to Latin *l* the value of a lateral consonant, that is, of a sound formed with the oral passage closed at the center by the tongue but open at the sides. This tradition is confirmed, for example, by the dissimilative change of the suffix *alis* to *aris* after words containing *l*, *exemplaris*, *familiaris;* for such interchange of *l* and *r* is to be observed in many languages.

An alveolar *l*, similar to English *l*, rather than a dental *l*, such as French and German possess, is indicated by the following ancient testimony:

Terentianus Maurus vi. 332. 230 ff. K.:

> Adversa palati supera premendo parte
> obstansque sono quem ciet ipsa lingua nitens
> validum penitus nescio quid sonare cogit,
> quo littera ad aures veniat secunda nostras,
> ex ordine fulgens cui dat locum synopsis.[2]

[1] Osthoff, *TAPA*, XXIV, 50 ff.; Vendryes, pp. 152 ff.; Meillet, *MSL*, XIII, 238 ff.

[2] "By pressing the opposite parts of the palate with its upper surface and vigorously opposing the sound of which it is itself the cause, the tongue produces a powerful sound far back in the mouth, wherefore comes to our ears the brilliant letter, second in order, to which our list assigns that place."

Marius Victorinus vi. 34. 10 f. K.: Sequetur *l* quae validum nescio quid, partem palati qua primordium dentibus superis est lingua trudente, diducto ore personabit.[1]

Martianus Capella iii. 261: *L* lingua palatoque dulcescit.[2]

There are several proofs that Latin had also a back (velar or guttural) *l*. This was the value, in early Latin at least, of *l* which was final or which stood before another consonant (except a second *l*) or before any vowel except *ĭ*. For before *l* in these positions *ĕ* and also unaccented *ă* became *ŏ;* and then *ŏ*, whether of this origin or of any other, became *ŭ* unless *u* or *v* preceded[3] (*facul facultas* but *facilis*, *Siculus* but *Sicilia* from Σικελός and Σικελία, *spatula* from σπατάλη, *multa* from *molta;* but *volt*, *volgus*, *parvolus*, etc.). At some time later than Terence the latter change extended to *ŏ* after *u* and *v* (*vult*, *vulgus*, *parvulus*, etc.), and this is evidence for the existence of velar *l* as late as 150 B.C.

Several of the Romance languages show *u* for *l* before any consonant except a second *l* (French *autre*, Portuguese *outro*, Spanish *otro*—earlier **autro*—from *alter*), and there are traces of this change in late Latin (*καυκουλάτορι* for *calculatori*, *Ed. Diocl.* vii. 6. 7, *cauculus* for *calculus* in manuscripts). It is only a velar *l* that would be likely to become *u*.

The Roman grammarians record a difference in the sound of *l* according to its surroundings.

[1] "Next will come *l*, which, with tongue pressing the part of the palate where the roots of the upper teeth are, will send a powerful sound through the open mouth."

[2] "*L* with tongue and palate grows sweet."

[3] The change last mentioned did not affect *ŏ* of the initial syllable in case *l* was followed by a back vowel (*solutus*, *columna*, *solum*); and this may indicate that *l* immediately following the early initial accent and before a back vowel had already begun to approach normal *l*.

Priscian ii. 29. 8 ff. K.: *L* triplicem, ut Plinio videtur, sonum habet: exilem quando geminatur secundo loco posita, *ille*, *Metellus;* plenum quando finit nomina vel syllabas et quando aliquam habet ante se in eadem syllaba consonantem, ut *sol*, *silva*, *flavus*, *clarus;* medium in aliis, ut *lectum*, *lectus*.[1]

Consentius v. 394. 30 ff. K.: Romana lingua emendationem habet in hoc quoque distinctione. Nam alicubi pinguius, alicubi debet exilius proferri; pinguius cum vel *b* sequitur, ut in *albo*, vel *c*, ut in *pulchro*, vel *f*, ut in *adelfis*, vel *g*, ut in *alga*, vel *m*, ut in *pulmone*, vel *p*, ut in *scalpro;* exilius autem proferenda est ubicumque ab ea verbum incipit, ut in *lepore*, *lana*, *lupo*, vel ubi in eodem verbo et prior syllaba in hac finitur et sequens ab ea incipit, ut *ille* et *Allia*.[2]

The terms *exilis*, *plenus*, and *pinguis* are, as usual, impossible to interpret; but it is significant that *l* before a consonant is in both accounts separated from *ll*, and that according to Pliny it is associated with final *l*. If we accept both classifications as correct we must assume that velar *l* became gradually less common. Between 150 B.C. and Pliny's time *l* before back vowels ceased to be a back sound, and between Pliny and Consentius velar *l* came to be restricted to the position before consonants other than *l*—the one position in which the Romance languages offer clear evidence of the sound. We cannot now determine what difference there was,

[1] "*L* has a triple sound, as Pliny thinks: thin when double in second place, as *ille*, *Metellus;* full at the end of a word or a syllable and when it has a consonant before it in the same syllable, as *sol*, *silva*, *flavus*, *clarus;* intermediate in other words, as *lectum*, *lectus*."

[2] "The Roman tongue has a correction to make in this also by way of distinction. For in some places the sound should be thicker, in others thinner; thicker when *b* follows, as in *albus*, or *c*, as in *pulcher*, or *f*, as in *adelfi*, or *g*, as in *alga*, or *m*, as in *pulmo*, or *p*, as in *scalprum;* but it should have a thinner pronunciation wherever a word begins with it, as in *lepus*, *lana*, *lupus*, or where in the same word the preceding syllable ends with this letter and the following begins with it, as *ille* and *Allia*."

if indeed there was any, between Pliny's *exilis* and *medius sonus*.

Classical Latin had, then, an alveolar *l* similar to English *l*, and this sound probably belonged to *l* when initial or between vowels or double. Velar *l*, similar to Russian *ł*,[1] occurred probably when *l* was final or followed by any consonant except *l* or preceded by a consonant which belonged to the same syllable.

R

In most of the Romance languages *r* is trilled with the tip of the tongue against the upper teeth or gum or the front part of the palate. This is the sound described quite clearly by the Romans.

Lucilius ix. 377 f. M.:

> *R* non multum abest hoc cacosyntheton atque canina
> si lingua dico "nihil ad me."[2]

Persius i. 109: Sonat hic de nare canina littera.[3]

Augustine *De Dialectica* xxxii. 2 = *Principia Dialecticae* 6 (reprinted by GS, p. 239): Sed quia sunt res quae non sonant, in his perspicis similitudinem tactus valere, ut si leniter vel aspere sensum tangunt lenitas vel asperitas litterarum ut tangit auditum sic eis nomina pepererit, ut ipsum *lene* cum dicimus leniter sonat; quis item asperitatem non in ipso nomine *asperam* iudicet? Lene est auribus cum dicimus *voluptas*, asperum cum dicimus *crux*. Ita res ipsae afficiunt ut verba sentiuntur; *mel*, quam suaviter

[1] It is formed with the back of the tongue against the roof of the mouth and with openings at the sides. A similar sound is commonly given to English *l* in *milk*, *silk*, etc.

[2] "This cacophonous *r* isn't much different from saying in dog's language, 'It's nothing to me.'"

[3] "Hereupon the dog's letter sounds through the nose." This is Persius' way of saying, "A sound is heard like a dog's snarl."

gustum res ipsa, tam leniter nomine tangit auditum; *acre* in utroque asperum est; *lana* et *vepres*, ut audiuntur verba, sic illa tanguntur.[1]

Terentianus Maurus vi. 332. 238 f. K.:

> Vibrat tremulis ictibus aridum sonorem
> has quae sequitur littera.[2]

Marius Victorinus vi. 34. 15 f. K.: Sequetur *r* quae vibrato †vocis palatum linguae fastigio fragorem tremulis ictibus reddit.[3]

Martianus Capella iii. 261: *R* spiritum lingua crispante corraditur.[4]

M[5]

The ancient descriptions leave no doubt that *m* was a bilabial nasal similar to English *m*.

Terentianus Maurus vi. 332. 235 K.:

> At tertia clauso quasi mugit intus ore.[6]

[1] "But because there are things which have no sound, in these the likeness of the sense of touch prevails, so that if they strike the senses smoothly or roughly the letters, according as these are smooth or rough to the hearing, have given them names; for example, when we say this very word *lenis*, it has a smooth sound; and likewise, who would not judge that there is roughness in the very word *aspera*. It is smooth to the ears when we say *voluptas*, rough when we say *crux*. Things themselves have the same effect as the sounds of their names; the noun *mel* is as smooth to the hearing as honey is sweet to the taste; *acer* is rough in both ways; wool and briers are to the touch as the words *lana* and *vepres* are to the hearing." Hence *r* was rough and *l* smooth; which would be true only if *r* was trilled or rolled.

[2] "The next letter shakes out a dry sound with rapid blows."

[3] "Next will come *r*, which by vibrating the tip of the tongue . . . . gives a thunderous noise with rapid blows."

[4] "*R* is scraped forth while the tongue puts the breath into tremulous motion."

[5] Sturtevant and Kent, *TAPA*, XLVI, 129 ff.

[6] "But the third letter may be said to low within the closed mouth."

Marius Victorinus vi. 34. 12 f. K.: *M* impressis invicem labiis mugitum quendam intra oris specum attractis naribus dabit.[1]

Martianus Capella iii. 261: *M* labris imprimitur.[2]

Final *m* is frequently omitted in early inscriptions (e.g., *duonoro optimo fuise viro*, *CIL* i. 32), and again in late plebeian inscriptions. The weakness of the sound before an initial vowel of the next word is frequently discussed by the grammarians.

Quintilian ix. 4. 40: Atqui eadem illa littera, quotiens ultima est et vocalem verbi sequentis ita contingit ut in eam transire possit, etiamsi scribitur, tamen parum exprimitur, ut *multum ille* et *quantum erat;* adeo ut paene cuiusdam novae litterae sonum reddat. Neque enim eximitur sed obscuratur et tantum aliqua inter duas vocales velut nota est ne ipsae coeant.[3]

The same phenomenon, no doubt, is described by Velius Longus and Priscian, although they do not specify the position before an initial vowel.

Velius Longus vii. 54. 13 ff. K.: Nam quibusdam litteris deficimus, quas tamen sonus enuntiationis arcessit, ut cum dicimus *virtutem* et *virum*, *fortem*, *consulem*, *Scipionem* pervenisse fere ad aures peregrinam litteram invenies.[4]

[1] "With the lips pressed together *m* will sound like the lowing of cattle within the cavern of the mouth, to which the nostrils will be joined."

[2] "*M* is imprinted by the lips."

[3] "But the same letter *m*, when it terminates a word and is in contact with an initial vowel of the following word so that it may coalesce with it, is, though it is written, hardly expressed, as *multum ille* and *quantum erat;* so that it gives the sound almost of a new letter. For it is not extinguished but obscured, and is, as it were, a mere mark of distinction between the two vowels to prevent them from combining."

Professor Knapp suggests that we read *exprimitur* for *eximitur* in the last sentence, which would improve the sense.

[4] "For we lack certain letters, which pronunciation nevertheless demands; for example, when we say *virtutem*, *virum*, *fortem*, *consulem*,

Priscian ii. 29. 15 f. K.: *M* obscurum in extremitate dictionum sonat, ut *templum*, apertum in principio, ut *magnus*, mediocre in mediis, ut *umbra*.[1]

There is also a curious discussion of the syllabification of final *m* before an initial vowel.

Pompeius v. 287. 7 ff. K.: Myoticismus est quotiens inter duas vocales *m* positum exprimitur, ut si dicas *hominem amicum*, *oratorem optimum*. Non enim videris dicere *hominem amicum* sed *homine mamicum*. . . . . Bonam rationem dixit Melissus quomodo vitandum est hoc vitium, ne incurramus in aliud vitium. Plerumque enim aut suspensione pronuntiatur aut exclusione; suspensione pronuntiatur si dicas *hominem amicum*, *oratorem optimum;* aut, certe si velis excludere, *homine amicum*, *oratore optimum*. Nos quid sequi debemus? Quid? Per suspensionem tantum modo! Qua ratione? Quia si dixeris per suspensionem *hominem amicum*, et hoc vitium vitabis, myoticismum, et non cades in aliud vitium, id est in hiatum. Nam si volueris dicere *homine amicum*, vitas quidem myoticismum, non tamen vitas hiatum.[2]

Scipionem, you will find that what is virtually a foreign letter has come to the ears."

This passage has convinced me that final *m* before an initial vowel was somehow pronounced in case elision did not occur. The contrary opinion was expressed in *TAPA*, XLVI, 145 ff.

[1] "*M* has a dull sound at the end of words, as in *templum*, a clear sound at the beginning, as in *magnus*, an intermediate sound in the interior, as in *umbra*."

[2] "There is myoticism when *m* between two vowels is pronounced, as if you should say *hominem amicum*, *oratorem optimum*. For you do not seem to say *hominem amicum* but *homine mamicum*. . . . . Melissus has stated a good method of avoiding this fault without falling into another. For it is common to pronounce either with a pause or with omission, with a pause if you should say *hominem amicum*, *oratorem optimum*, or, if you should wish definitely to omit the sound, *homine amicum*, *oratore optimum*. Which should we do? Why! Pronounce with a pause exclusively! For what reason? Because if you say *hominem amicum* with a pause, you will escape this fault of myoticism and you will not fall into another fault, that is hiatus. For if you wish to say *homine amicum*, you will to be sure escape myoticism, but not hiatus."

It is incredible that standard pronunciation actually favored such a treatment of final consonantal *m* as Pompeius recommends; for the universal practice was to pronounce a single consonant with the following vowel, except at the end of a phrase. If, however, we suppose that final *m* before an initial vowel was lost and the preceding vowel nasalized, the syllable division would fall as he directs. The same hypothesis satisfies the other passages cited.

It also accords with the fact that syllables ending in final *m* were treated, both in ordinary speech and in verse, in precisely the same way as final vowels. The stereotyped phrases *animadverto*, *circitor*, *curago*, and *veneo* prove that final syllables in *m* might be entirely lost. The loss of the *m* in case of elision is clearly prescribed by the grammarians.

Quintilian xi. 3. 34: Nam et vocales frequentissime coeunt, et consonantium quaedam insequente vocali dissimulatur. Utriusque exemplum posuimus: *Multum ille et terris.*[1]

Velius Longus vii. 54. 4 ff. K.: Cum dicitur *illum ego* et *omnium optimum*, *illum* et *omnium* aeque *m* terminat, nec tamen in enuntiatione apparet.[2]

Velius Longus vii. 80. 17 ff. K.: Non nulli circa synaliphas quoque observandum talem scriptionem existimaverunt, sicut Verrius Flaccus, ut ubicumque prima vox *m* littera finiretur, sequens a vocali inciperet, *m* non tota, sed pars illius prior tantum scriberetur, ut appareret exprimi non debere.[3]

[1] "For vowels very frequently coalesce, and one of the consonants is disguised when a vowel follows. I have already given an example of both in *Multum ille et terris.*"

[2] "When one says *illum ego* and *omnium optimum*, *m* is final in both *illum* and *omnium;* but still it does not appear in pronunciation."

[3] "Some, e.g., Verrius Flaccus, have thought that a similar method of writing should be followed in case of synalepha also, so that in case the first word ended in *m* and the second began with a vowel, not the entire letter *m* should be written, but only the first part of it, to make it clear that the letter should not be pronounced."

Caesellius Vindex ap. Cassiodorus vii. 206. 16 f. K.: *M* litteram, ad vocales primo loco in verbis positas si accesserit, non pronuntiabimus.[1]

Pronunciation without elision is evidenced by the stereotyped phrases *circuire*, *CIL* ii. 3420, etc., *cura ago*, vi. 6144 *a* (first century), etc.,[2] *queadmodum*, ii. 5439, iv. (2). 14, 18, etc., and the late future infinitives passive such as *datuiri;* the omission of *m* indicates that the spelling is phonetic, and yet the final vowel of the first word is written. Phrases whose first word ended in a vowel were sometimes treated in the same way, e.g., *neüter* (p. 62), *proüt*, *quoüsque*. Such pronunciations furnished the basis for the occasional hiatus of Latin verse.

It is impossible to assume that final *m* was lost with nasalization of the preceding vowel before initial consonants as well as before initial vowels. Since such syllables were regularly scanned long, in Plautus as well as in the later poets, it would be necessary to assume that the nasal vowel was long from the beginning of the literature. But after Plautus' time the syllable *-om* in such words as *quom*, *suom*, *servom*, and *equom* suffered a change to which only short *o* was subject (pp. 34 ff.).[3]

Before certain initial consonants final *m* was assimilated.

Velius Longus vii. 78. 16 ff. K.: Nec non et ipsa *n* littera in locum *m* litterae succedit, ut cum dicimus *clandestinum*, cum ab eo trahatur quod est *clam*, item *sinciput* quod est *semicaput*. Sed non ubique obtinendum. Nam et non numquam plenius per *n*

[1] "We shall not pronounce *m* if it comes to stand before initial vowels."

[2] See Diehl, *Neue Jahrbücher*, Suppl. XXV, 208 ff.

[3] Otherwise Niedermann, *Outlines of Latin Phonetics*, pp. 54 ff.

quam per *m* enuntiatur, ut cum dico *etiam nunc*, quamvis per *m* scribam nescio quo modo tamen exprimere non possum.[1]

The assimilation was probably regular within a phrase before *t, d, n, c, k, q, g*, and possibly some other sounds.

It is probable, then, that at an early date final *m* within a phrase was lost before an initial vowel, and the preceding vowel was nasalized. Such nasalized vowels might be elided in the same way as other final vowels. Final *m* became *n* or the velar nasal before an initial consonant which favored such a change.

N[2]

The ancient descriptions of *n* leave no doubt of its character.

Terentianus Maurus vi. 332. 236 f. K.:

> Quartae sonitus figitur usque sub palato,
> quo spiritus anceps coeat naris et oris.[3]

Marius Victorinus vi. 34. 13 f. K.: *N* vero sub convexo palati lingua inhaerente gemino naris et oris spiritu explicabitur.[4]

Martianus Capella iii. 261: *N* lingua dentibus appulsa conlidit.[5]

[1] "And sometimes this very letter *n* takes the place of *m*, as when we say *clandestinus*, although it is derived from *clam*, and likewise *sinciput* from *semicaput*. But we must not in every case spell thus. For sometimes the pronunciation is rather that of *n* than of *m*, as when I say *etiam nunc*, although I write *m* I somehow cannot pronounce it."

[2] Brugmann, *Curtius Studien*, IV, 103 f.; Havet, *MSL*, IV, 276; Lindsay, *CR*, XVIII, 402.

[3] "The sound of the fourth is formed just beneath the palate, where the two streams of breath, from nose and mouth, come together."

[4] "With the tongue resting in the hollow of the palate *n* will be formed by the double breath of nose and mouth."

[5] "The tongue resting against the teeth makes the contact for *n*."

The alveolar *n* of English is formed with the tip of the tongue against the upper gum, while the dental *n* of French is produced with the tip of the tongue against the teeth and the surface of the tongue resting upon the gum. The first two of the foregoing passages would apply to either position, but Martianus Capella defines the latter. We shall see that the dental articulation is still more clearly prescribed for *d;* and in most languages *d* and *n* are similarly articulated. Furthermore most of the other Romance languages, as well as French, have a dental *n*.

Before *s*, *n* was about to disappear at the beginning of our records. The early inscriptions especially show such forms as *cosol* and *cesor*, and that the pronunciation *cosul* was current in classical Latin is shown by Quintilian i. 7. 29:

> *Columnam* et *consules* exempta *n* littera legimus.[1]

In orthography, and probably also in the pronunciation of most words, the schools kept the moribund sound alive for some centuries, but it has vanished without leaving a trace in the Romance languages.[2]

The Romans recognized the existence of a velar *n* (i.e., the *n* of English *ink*) in such words as *anguis*.

Gellius xix. 14. 7: Item ex eodem libro (Nigidi Figuli) verba haec sunt: "Inter litteram *n* et *g* est alia vis, ut in nomine *anguis* et *angari* et *ancorae* et *increpat* et *incurrit* et *ingenuus*. In omnibus his non verum *n* sed adulterinum ponitur. Nam *n* non

[1] "*Columna* and *consules* we read without the letter *n*."

[2] There is no evidence for the nasalization of a vowel before *ns*, and we have no right to assume it, even though such a development would be quite natural. The group *nf* does not even show a tendency to lose *n* in classical times.

esse lingua indicio est; nam si ea littera esset, lingua palatum tangeret."[1]

Varro ap. Priscian ii. 30. 15 ff. K.=p. 201 GS: Ut Ion scribit, quinta vicesima est littera quam vocant agma, cuius forma nulla est et vox communis est Graecis et Latinis, ut his verbis: *aggulus*, *aggens*, *agguilla*, *iggerunt*. In eius modi Graeci et Accius noster bina *g* scribunt, alii *n* et *g* quod in hoc veritatem videre facile non est. Similiter *agceps*, *agcora*.[2]

There are several reasons for believing that in the combination *gn*, *g* was pronounced as a velar nasal: (1) *Pn* and *bn* became *mn* (*somnus*: Sanskrit *svapnas*, Old Icelandic *swefn*, *amnuit*, for *abnuit*, *CGL* iv. 308), and *dn* became *nn* (*annuo* for *adnuo*). A parallel development of *cn* and *gn* would yield velar *n*+dental *n*, whereas we find *gn* written, as in *ilignus*:*ilex*, *dignus*:*decet*, and *cognosco*:γιγνώσκω. (2) Before velar *n*, *ĕ* became *ĭ* (*quinque*:πέντε, *tinguo*:τέγγω), and the same change appears in *dignus*:*decet*, *lignum*:*lego*, *ilignus*:*ilex*, *signum*:*insece*, and in *tignum*, whether this is related to *tego* or to *texo*. (3) The nasal pronunciation of *g* is indicated by such epigraphical forms as *congnatus*, *CIL* vi. 14931, x. 1220, 2758, 3408, *dingnissime*, xiv. 1386, *ingnes*, iv. 3121, *ingnominiae*, i. 206, 120, 121, *singnifer*, vi. 3637, *sinnu*=*signum*, ix. 2893, *mana*=*magna*, vi. 14672. 12; *aprunae*, *Ed. Diocl.* iv. 43, *Pelinam*,

[1] "In the same book Nigidius Figulus says: 'Between *n* and *g* there is another sound, as in *anguis*, *angari*, *ancorae*, *increpat*, *incurrit*, *ingenuus*. In all these is written not a genuine but a false *n*. For the tongue gives evidence that it is not *n;* for if it were that letter the tongue would touch the palate.'"

[2] "As Ion writes, there is a twenty-fifth letter which they call *agma*, for which there is no character, but whose sound is common to the Greeks and the Latins, as in *aggulus*, *aggens*, *agguilla*, *iggerunt*. In such words the Greeks and Accius write double *g*, others *n* and *g*, because in this matter it is not easy to see the truth. Similarly *agceps*, *agcora*."

CIL ix. 3314 (217 A.D.). Greek inscriptions sometimes show Ναῖος for *Gnaeus*, e.g., *IG* iii. 1436. (4) The nasal pronunciation of *g* explains the loss of *n* in *ignarus*, *ignavus*, *ignobilis*, *ignominia*, *ignosco*, *cognatus*, *cognosco*, etc. (5) Less importance is to be attached to the supposed pun (p. 9) in Plautus *Rud.* 767:

LA. Ígnem mágnum hic fáciam. *DAE.* Quín inhúmanum éxurás tibi?

or to Cicero's (*Rep.* iv. 6) derivation of *ignominia* from *in nomine.* The grammarians' failure to mention this use of *g*, though strange, is perhaps explained by the fact that the Greek grammarians say nothing of the similar phenomenon in Greek (pp. 168 ff.).[1]

Latin *n* was in most positions a dental nasal similar to French *n* between vowels. Before *s* it tended to be lost from early times, but there is no reason to suppose that in standard Latin its pronunciation differed from that which prevailed in other positions. Before *c*, *g*, and *q*, *n* was a velar nasal, as it is in English *ink*, *anguish*, etc., and in the group *gn* this same sound was expressed by *g*.

F

The later grammarians describe *f* quite clearly as a labio-dental spirant, that is, as equivalent to English *f*. Terentianus Maurus vi. 332. 227 ff. K.:

Imum superis dentibus adprimens labellum,
spiramine leni, velut hirta Graia vites,
hanc ore sonabis.[2]

[1] Professor Buck suggests that the silence of the grammarians may indicate a spelling pronunciation in standard Latin.

[2] "Pressing the lower lip against the upper teeth you will sound this letter with a smooth breath, as if avoiding the Greek rough mutes."

Marius Victorinus vi. 34. 9 f. K.: *F* litteram imum labium superis imprimentes dentibus, reflexa ad palati fastigium lingua, leni spiramine proferemus.[1]

Martianus Capella iii. 261: *F* dentes (faciunt) labrum inferius deprimentes.[2]

Quintilian xii. 10. 29: Nam et illa quae est sexta nostrarum paene non humana voce, vel omnino non voce potius, inter discrimina dentium efflanda est.[3]

Quintilian's description is less clear than the others, but his statement that the sound is "blown out through the interstices of the teeth" is true only of labio-dental, not of bilabial, *f*.

In early Latin, however, we find such assimilations as *im fronte*, *CIL* i. 1104, and *comfluont*, i. 199. 13. Since *m* was a bilabial consonant, *f* also must have been bilabial in early times.

Mutes[4]

The Greeks and Romans have left us no account of the distinction between voiced and voiceless mutes, and consequently our knowledge of the subject is a matter of inference.

The tradition of the schools is quite unanimous in making *c*, *k*, *q*, *p*, and *t* voiceless sounds and *b*, *d*, and *g* voiced. Even though there is much variation in their

[1] "Putting the lower lip against the upper teeth, with the tongue bent back toward the top of the palate, we shall pronounce *f* with a smooth breath."

[2] "The teeth holding down the lower lip form *f*."

[3] "For that one also which is the sixth of our letters, with a voice scarcely human or rather with no voice at all, requires to be blown out through the interstices of the teeth."

[4] Conway, *AJP*, XLIII, 302 ff.; Hempl, *TAPA*, XXX, 24 ff.; Sturtevant, *ibid.*, XLVIII, 49 ff.

pronunciation of *c* and *g*, and of *ti* and *di*, scholars have always agreed as to which of these sounds should be pronounced with voice. The popular tradition represented by the Romance languages harmonizes with that of the schools as far as concerns initial consonants, as in the following examples:

Latin.......	pellis	bellus	talis	digitus	credere	grandis
Italian......		bello	tale	dito	credere	grande
French......	peau	beau	tel	doigt	croire	grand
Spanish.....	piel		tal	dedo	creer	grande

In other positions also and even when the character of the ancient sound has been more or less altered the Romance languages more frequently than not confirm the tradition of the schools in regard to the presence or absence of voice (French *jour* from *diurnus*, French *cent* from *centum*, Italian *croce* from *crucem*, Italian *invernare* from *hibernare*).

The regular correspondents of Latin mutes in other ancient languages make available for our purpose the independent traditions regarding the mutes of those languages. Between Greek and Latin we find numerous exchanges such as these: Γαῖος, Κοῖντος, Καπετώλιον, Βάσσος, Δομέτιος, *catapulta*, *basis*, *Daedalus*, *Agamemnon*. In modern Greek *β*, *δ*, and *γ* are voiced sounds and *π*, *τ*, and *κ* are voiceless, except after nasals.

Of equal significance are the loan-words in the Celtic and Germanic languages; such as Welsh *póc* from *pacem* and *bendith* from *benedictio*, English *kitchen* (Anglo-Saxon *cycene*) from *coquina*, Gothic *Kaisar*, German *Kaiser*, Gothic *Agustus*, *Qartus*, *akeit*, etc.

The phenomena of assimilation also indicate that *c*, *q*, *p*, and *t* were voiceless and *b*, *d*, and *g* voiced. Typical

examples are *ecfero*, *ecquis*, *nupsi*, *nuptus*, *urbs* (pronounced *urps*), *obtineo* (pronounced *optineo*, p. 113), *admitto*, *attineo*, *rex*, *rexi*, *rectus*, *regnum*. Furthermore *b*, *d*, and *g* are among the consonants before which *s* (which had become *z*) was lost in early Latin, as in *ebibo* from **esbibo* from **exbibo*, *tredecim*, *digero*.[1] These examples and a great many others, a few of which have been cited above (pp. 75, 77 f.), show that in some respect *c*, *f*, *p*, *q*, *s*, and *t* were alike and in that respect different from *b*, *d*, *g*, *i*, *l*, *m*, *n*, *r*, and *v*. There is scarcely any feature which could divide the consonants into these two classes except the presence or absence of voice. This fact in connection with the specific evidence which we have noticed for the voiced or voiceless character of the several sounds is quite conclusive.

As we shall see (pp. 172 ff.), the Greek mutes are divided into three orders, smooth, middle, and rough. The rough mutes, φ, θ, χ, were aspirates, that is, mutes pronounced with great energy and followed by an audible puff of breath; the smooth mutes, π, τ, κ, were quite free from aspiration for the reason that they were pronounced with little energy; and the middle mutes, β, δ, γ, were intermediate in respect to energy of articulation and the consequent aspiration. In other words, the Greek aspirates were *ultra-fortes*, the middle mutes were *fortes*, and the smooth mutes were *lenes*. This Greek system is adopted and applied to Latin by Priscian in a passage beginning (ii. 20. 9 ff. K.):

Inter *c* sine aspiratione et cum aspiratione est *g*, inter *t* quoque et *th* est *d*, et inter *p* et *ph* sive *f* est *b*. Sunt igitur hae tres, hoc

[1] This development of Latin *zg* is, of course, later than the change of Indo-European *zg* to *rg*, which is assumed by many scholars.

est *b*, *g*, *d*, mediae, quae nec penitus carent aspiratione nec eam plenam possident.[1]

Although the Roman grammarians were familiar with the traditional classification of the Greek mutes into the three orders, rough, middle, and smooth, and although a limited use of it is made from Cicero's time on in the treatment of *ph*, *th*, and *ch* in Latin words, this passage in Priscian is the only one which applies such a classification to Latin *b*, *d*, and *g*. This is the more remarkable since the grammarians are plainly at a loss in their efforts to find a clear distinction between the mutes which we call respectively voiced and voiceless. We may therefore suspect that the Romans found the familiar statement that β, etc., have more breath than π, etc., inapplicable to their language. It appears, in fact, that in Latin the voiceless mutes were *fortes* and the voiced mutes *lenes*.

As regards *g* and *c* we may cite the following: Terentianus Maurus vi. 331. 194–98 K.:

> Utrumque latus dentibus applicare linguam
> *c* pressius urget; dein hinc et hinc remittit,
> quo vocis adhaerens sonus explicetur ore.
> *G* porro retrorsum coit et sonum prioris
> obtusius ipsi prope sufficit palato.[2]

[1] Between aspirated and unaspirated *c* is *g*, between *t* and *th* is *d*, and between *p* and *ph* or *f* is *b*. These three, therefore, that is, *b*, *g*, and *d*, are *mediae*, because they neither altogether lack nor fully possess aspiration.

[2] *C* strives to press both sides of the tongue more closely against the teeth, and then relaxes the pressure on both sides so that the sound of the following vowel may be produced in the mouth. *G*, on the other hand, causes a closure farther back, and produces the sound of the former letter, somewhat dulled, near the very roof of the mouth."

Marius Victorinus vi. 33. 20 ff. K.: *C* etiam et *g*, ut supra scriptae, sono proximae, oris molimine nisuque dissentiunt. Nam *c* reducta introrsum lingua hinc atque hinc molares urgens haerentem intra os sonum vocis excludit; *g* vim prioris pari linguae habitu palato suggerens lenius reddit.[1]

Terentianus tells us that the contact was closer in *c* than in *g*, and Victorinus says that the articulation of *c* was the more energetic. It is merely to translate this into modern technical terms to say that *c* was a *fortis* and *g* a *lenis*. Terentianus furthermore describes the sound of *g* as "duller" and Victorinus as "weaker" than that of *c*. The latter term is particularly interesting as being the source of our technical term *lenis*. It is clear that Victorinus' use of the word has no connection with the occasional translation of Greek *προσῳδία ψιλή* by *spiritus lenis;* for that analogy would have led him to apply *lenis* to the sound of *c*, since Greek *κ* was a *στοιχεῖον ψιλόν*.

Even clearer is a passage in which Terentianus treats the distinction only incidentally, vi. 351. 893 ff. K.:

> Scribimus praenomen unum et *c* quidem praeponimus,
> *g* tamen sonabit illic, quando *Gnaeum* enuntio,
> asperum quia vox sonorem leviore interpolat.[2]

Here he actually uses the Greek terminology, but makes *c asper* "rough" and *g levis* "smooth."

[1] "*C* and *g*, as well as the above-mentioned letters, are very close together in sound, but differ in the effort and energy of the mouth. For *c*, pressing the backdrawn tongue on both sides against the molars, and shutting the sound of the vowel within the mouth (then relaxes the pressure and) forces out the sound; *g*, with the same position of the tongue, makes the sound of the preceding letter weaker by lifting it up to the roof of the mouth."

[2] "We write a praenomen and set down *c* as its initial, yet *g* will sound there when I pronounce *Gnaeum*, because the voice substitutes a smoother sound for the rough one."

As to the labials also we can learn something from Terentianus and his paraphraser.
Terentianus vi. 331. 186–93 K.:

> *B* littera vel *p* quasi syllabae videntur
> iunguntque sonos de gemina sede profectos;
> nam muta iubet portio comprimi labella,
> vocalis at intus locus exitum ministrat.
> Compressio porro est in utraque dissonora;
> nam prima per oras etiam labella figit,
> velut intus agatur sonus; ast altera contra
> pellit sonitum de mediis foras labellis.[1]

Marius Victorinus vi. 33. 15 ff. K.: *B* et *p* litterae coniunctione vocalium quasi syllabae (nam muta portio penitus latet; neque enim labiis hiscere ullumve meatum vocis exprimere nisus valet, nisi vocales exitum dederint atque ora reserarint) dispari inter se oris officio exprimuntur. Nam prima exploso mediis labiis sono, sequens compresso ore velut introrsum attracto vocis ictu explicatur.[2]

It is evident that Victorinus has applied Terentianus' description of *p* to *b* and vice versa; but still his own feeling for the sounds has colored his paraphrase so far that we can extract a little information from it.

[1] "The letters *b* and *p* appear almost as syllables, they unite sounds from two different sources; for the mute portion demands that the lips be pressed together, whereas the vocalic portion within produces a passage (for the voice). The closure of the two, however, differs in its sound; for the former shapes the lips along their edges as if the sound were being produced between them; the second, on the other hand, forces the sound forth from the middle of the lips."

[2] "*B* and *p* in connection with vowels form syllables, as it were; for their mute portion is imperceptible, in fact their impulse is not able to open the lips or to produce any action of the voice unless the vowels give a passage and open the mouth. They are produced by dissimilar action of the mouth; for the first results when the sound is driven out from the middle of the lips, the second, when the mouth is tightly closed and the impact of the voice is, so to speak, drawn in."

Terentianus ascribes an imperfect closure of the lips to *b*, reminding us of the confusion of medial *b* and *v*, of which there are some traces in inscriptions as early as the second century A.D. An imperfect closure implies a *lenis*. Victorinus seems to say that for *p* the lips were drawn inward, as is natural in a vigorous closure. Terentianus' statement that the sound of *p* is driven out from the middle of the lips also implies a strong articulation.

Martianus Capella, in his summary description of the speech-sounds, uses more energetic phraseology of *p* and *t* than of *b* and *d* (iii. 261):

> *B* labris per spiritus impetum reclusis edicamus. . . . . *P* labris spiritus erumpit. *D* appulsu linguae circa superiores dentes innascitur. . . . . *T* appulsu linguae dentibusque impulsis extunditur.[1]

The Latin mutes therefore differed from the Greek mutes in that, while the Greeks pronounced the voiced mutes with more energy than the unaspirated voiceless mutes, the Romans pronounced the voiced mutes with less energy than the voiceless mutes. The several mutes of the two languages must be classified as to breath as follows:

	Aspirates	Fortes	Lenes
Labials	φ	β *p*	π *b*
Dentals	θ	δ *t*	τ *d*
Velars	χ	γ *c*	κ *g*

[1] "With the lips forced open by the impulse of the breath, let us utter *b*. . . . . The breath causes *p* to burst forth from the lips. *D* is formed by applying the tongue about the upper teeth. . . . . *T* is forced out by pushing the tongue against the teeth."

This classification conflicts with that according to the presence or absence of voice, and there resulted some confusion between the orders of mutes in words borrowed by one of the classical languages from the other.

In general voiced mutes represented voiced mutes and voiceless mutes represented voiceless mutes (β = *b*, π = *p*, etc.). There are, however, in the aggregate, many instances of *fortis* for *fortis* and *lenis* for *lenis* (β = *p*, π = *b*, etc.). The latter system was especially common in early times and in colloquial speech. Thus *gubernare* from κυβερνᾶν, Plautus *Mil.* 1091, had been naturalized long enough before Plautus' time so that its derivative *gubernator* was already familiar (*Amph.* 950, *Mil.* 1181, *Rud.* 1014). Another word which appears in Plautus and persists throughout the literature is *conger* from γόγγρος, *Aul.* 399, etc. Cato is our earliest authority for *amurca* from ἀμόργη, *R.R. passim*, *Grabatus* from κράβ(β)ατος, Catullus x. 22, *citrus* from κέδρος, Varro *Men.* 141. 9 Riese, and *spelunca* from σπήλυγγα (accusative), Cicero *Verr.* ii. 4. 107, although not quotable before the Ciceronian period, were no doubt early borrowings, as was also *camelae* from γαμήλιαι (Paul. Fest. 55. 19 Lindsay: *camelis virginibus supplicare nupturae solitae erant*).

Occasionally even a word borrowed in the early period was taken over again in the form required by the later system. *Catamitus* from Γανυμήδης, Plautus *Men.* 144, etc., was supplanted by the form *Ganymedes*, except in the metaphorical use. Ennius' *Burrus* (Cicero *Or.* 160) was replaced by *Pyrrhus*, and Terence's *Burria* (*And.* 301, etc.—the familiar *Byrria* is a strange mixture of early and late orthography) for Πυρρίας survived only

in the one play. *Euretice* for Εὐρυδίκη occurs only in *Notae Tironianae* 116 Schmitz. Praenestine *Telis* for Θέτις, *CIL* xiv. 4102, implies an intermediate form **Tedis*.

Where standard Latin came to differ from colloquial Latin in this way, the Romance languages, of course, agree with the latter. From κόμμι we have standard Latin *cummi(s)* and colloquial *gummi(s)*, whence Italian *gomma*, Provençal and Spanish *goma*, French *gomme*. In many words the Romance languages are our only evidence for the colloquial Latin forms. Thus we have Italian, Spanish, and Portuguese *golfo*, Provençal *golf* from κόλπος; Italian *grotta* from κρυπτή; Italian *barattare*, Provençal, Catalan, Old Spanish, and Portuguese *baratar*, Old French *bareter* from πράττειν; Italian *batassare* from πατάσσειν.[1]

Greek material is less abundant, chiefly, no doubt, because comparatively few Latin words were borrowed by the Greeks in the early period before the custom was established of representing voiced mutes by voiced mutes and voiceless mutes by voiceless mutes. Greek π represents Latin *b* in Πόπλιος and Πόυπλιος (*passim*) and in Ποπλίλια for *Publilia*, *IG* xiv. 951, 5. Β stands for *p* in Ἀνβλεᾶτος = *Ampliatus*, *IG* iii. 1892, and probably ἴμβεια, xiv. 698, is for *impia*. Τ represents *d* in Ἀτβοκᾶτον, *BCH*, XII, 301, 8, 19, Κανδίτου, *IG* vii. 71, 72, 73, 74, and Κανδίτα, xiv. 690, while Τόμνου, *Ath. Mitth.*, XIII, 261, 87, stands for *Domini*. Greek κ represents *g* in Ἀκρίκολος, *BCH*, XI, 483, 69, καλίκων (*caligarum*), *Ed. Diocl.* ix. 5 ff., and Κρα(τ)ιδ(ία) (*Gratidia*), *IG* xiv. 1076.

[1] Further examples in Claussen, *Rom. Forsch.*, XV, 833 ff., and Sturtevant, *TAPA*, XLVIII, 58 ff.

Greek γ represents *c* in Ἀφρεγα(νός) (*Africanus*), *IG* iii. 1091. 5. 40, Γαμουρήνα (*Camurena*), xiv. 977, Γλυβερινός (*Cluverinus?*), *IGRRP* i. 1162, Γορδίβιος (*Cordivius*), *IG* iii. 1197, iii. 67 (but Γορβίδιος, ii. 24), Δέγμου (*Decimus*), *CIG* 5202, σαράγαρον (*sarracum*), *Ed. Diocl.* xv. 32. 36.

Further evidence that Latin *p*, *t*, and *c* were *fortes* is furnished by the use of φ, θ, and χ in loan-words to represent them; for example, Ἀντίσθεια (*Antistia*), *IG* xiv. 1397, Σολφίκιος (*Sulpicius*), iii. 870, Δομέστιχος (*Domesticus*), iii. 1133. 76, 1230, 1257, etc., Ὀφφιανός (*Oppianus*), *IGRRP* iii. 153. 10, Ἄφφιος, Ἄπφαιος, Ἀφφιανός, Ἀπφιανός, *passim*.[1]

The early equivalence of Latin *c* to Greek γ suggests a solution of the old riddle as to how Greek Γ (which was written ᐸ or ᑕ in the Euboean alphabet) became a voiceless mute in Latin *C*.[2] The letter was borrowed by the Romans as a *fortis* rather than as a voiced consonant; the old character continued to be used, for example, in *conger* from γόγγρος, *amurca* from ἀμόργη, *spelunca* from σπήλυγγα, *Catamitus* from Γανυμήδης (p. 98).

[1] The representation of φ, θ, and χ by *p*, *t*, and *c* in early Latin cannot be cited as evidence. The latter sounds were the only voiceless mutes which Latin possessed, and they would probably have been employed even if they had been *lenes*.

[2] It is unlikely that Etruscan influence was responsible; for the Oscans, who borrowed their alphabet directly from the Etruscans, preserved the original distinction as to voice between γ and κ, and also between β and π, and, with an unimportant variation, between δ and τ while Umbrian also distinguished *b* and *p*. Unless we ascribe all this to chance, we must assume that early Etruscan distinguished between voiced and voiceless mutes in the same way as Greek on the one side and Oscan on the other.

Latin *G* probably comes from Greek Z, which in Southern Italy developed from its original form I into K, ⟨, and *Γ*, and was confused by the Romans with some forms of *K*, especially C. Later the character was rounded from *Γ* to C. In the Latin alphabet the letter has the position occupied by Greek Z while in many loan-words it has the value of Greek K; for example, *gubernare* for κυβερνᾶν, *grabatus* for κράβ(β)ατος, *gummi*(*s*) for κόμμι (pp. 98 f.).

It is not clear why the Romans followed the other system in borrowing the dental and labial mutes, so that, for example, *b* changed from the value of a *fortis* to that of a *lenis* but retained the value of a voiced consonant. No doubt this anomaly is somehow connected with the fact that in loan-words the use of *fortis* for *fortis* and *lenis* for *lenis* is most common in the case of the gutturals.

We conclude that Latin *c* (also *q* and *k*), *p*, and *t* were voiceless *fortes*, and *b*, *d*, and *g* were voiced *lenes*. In other words, both series of sounds were in this respect similar to the corresponding English sounds, although *c*, *p*, and *t* probably had less aspiration than in English. It remains to determine the position in which the several sounds were articulated.

C, K, Q, and G[1]

It is clear that the three letters *c*, *k*, and *q* appeared to the Romans themselves and to their neighbors to have

[1] Bréal, *MSL*, VII, 149 ff.; Paris, *Mélanges linguistiques*, pp. 78 ff.; Guarnerio, *Archivio glottologico Italiano*, Suppl. IV, 21 ff.; Jones, *CR*, VII, 5 f.; Meyer, *Jahresheft des Vereins schweiz. Gymnasiallehrer*, XXXII, 44 ff.

identical value.[1] Of numerous statements which prove that this was the case, we may cite the following:

Marius Victorinus vi. 8. 16 K.: Nigidius Figulus in Commentariis suis nec *k* posuit nec *q* nec *x*.[2]

Serguis iv. 520. 18 ff. K. = Varro, p. 200, 5 ff. GS: Varro dicit consonantes ab *e* debere incipere quae semivocales sunt et in *e* debere desinere quae mutae sunt. Ideo illae quae non ab *e* incipiunt neque in *e* desinunt possunt pati calumniam, ut nec litterae videantur aut non sint necessariae, ut sunt in semivocalibus *x* et *z*. Non enim sunt necessariae; nam duplices sunt, quia ex aliis litteris fieri possunt. Ex mutis removentur propter illam quam diximus rationem *h*, *k*, *q*; *h* quod adspiratio sit, non littera, *k* et *q* ideo quod *c* littera harum locum possit implere.[3]

Quintilian i. 4. 9: An rursus aliae redundent, praeter illam aspirationis (quae si necessaria est etiam contrariam sibi poscit) et *k*, quae et ipsa quorundam nominum nota est, et *q*, cuius similis effectu specieque, nisi quod paulum a nostris obliquatur, koppa apud Graecos nunc tantum in numero manet. . . . .[4]

Diomedes i. 424. 29 ff., 425. 18 ff. K.: *K* consonans muta supervacua, qua utimur quando *a* correpta sequitur, ut *Kalendae*,

[1] On the sound of *u* after *q*, see p. 44.

[2] "Nigidius Figulus in his *Commentarii* wrote neither *k* nor *q* nor *x*."

[3] "Varro says that consonants (i.e., the names of the consonants) which are semivowels ought to begin with *e* and those which are mutes ought to end in *e*. Therefore fault can be found with those that do not begin with *e* or end in *e*, so that they seem not to be letters or are unnecessary; as *x* and *z* among the semivowels. For they are unnecessary, since they are double consonants and can be formed from other letters. From among the mutes are removed on account of the principle which I have stated *h*, *k*, and *q*; *h* because it is aspiration, not a letter, *k* and *q* for the reason that the letter *c* can take their place."

[4] "Whether, again, other letters are redundant, besides the mark of aspiration (which if it be necessary requires also a contrary mark) and *k*, which is itself the abbreviation of certain names, and *q*, to which Greek koppa, now retained only as a numeral, is similar in sound and shape, except that we Romans make the straight line oblique (Q instead of Ϙ)."

kaput, *kalumniae*. . . . . *Q* consonans muta ex *c* et *u* litteris composita supervacua, qua utimur quando *u* et littera vocalis in una syllaba iunguntur ut *Quirinus*.[1]

Donatus iv. 368. 7 ff. K.: Supervacuae quibusdam videntur *k* et *q;* qui nesciunt quotiens *a* sequitur *k* litteram praeponendam esse, non *c*, quotiens *u* sequitur per *q*, non per *c*, scribendum.[2]

Marius Victorinus vi. 33. 28 ff. K.: *K* et *q* supervacue numero litterarum inseri doctorum plerique contendunt, scilicet quod *c* littera harum officium possit implere. Nam muta et otiosa parte qua *c* incipit pro qualitate coniunctae sibi vocis supremum exprimit sonum. Nonnihil[3] tamen interest utra earum prior sit, [*c*] seu *q* sive *k*. Quarum utramque exprimi faucibus, alteram distento, alteram producto rictu manifestum est.[4]

In view of the other passages, Marius Victorinus probably means to say that *a*, the vowel which follows *k* in the name of the letter (*ka*), is formed with the mouth as wide open as it ever is in speech, while *u*, the sound which follows *q* in the name *qu*, is pronounced with the lips thrust forward.[5] It is likely also that he observed

[1] "*K*, a mute consonant, is superfluous; we use it when short *a* follows, as *Kalendae*, *kaput*, *kalumnia*. . . . . *Q*, a mute consonant composed of the letters *c* and *u*, is superfluous; we use it when *u* and a vowel are united in one syllable, as *Quirinus*."

[2] "*K* and *q* seem superfluous to certain writers, who do not know that whenever *a* follows *k* should precede, not *c*, and whenever *u* follows we should write *q*, not *c*."

[3] Keil: *nihil;* see Sommer, *Kritische Erläuterungen*, pp. 67 f.

[4] "Many scholars contend that *k* and *q* are superfluous additions to the number of the letters, because *c* could perform their function. For, mute and functionless in the part where *c* begins, it expresses the last part of its sound according to the quality of the following vowel. Nevertheless it makes some difference which of them precedes, *q* or *k*. It is clear that both of them are pronounced in the throat, one with the mouth open wide, the other with the mouth-opening drawn forward."

[5] Compare Guarnerio, *op. cit.*, pp. 34 f., and Sommer, *Kritische Erläuterungen*, p. 67.

that in the group *qu* followed by a vowel the rounding of the lips coincided with the articulation of the mute (p. 44).

The equivalence of *c*, *k*, and *q* appears furthermore from the interchange of the three characters in inscriptions and manuscripts (*obsecuens*, *CIL* v. 6061, *recuie*, 7647; *Luqorcos*, *Eph. Ep.* i. 15; *Marqus*, *CIL* viii. 6622,[1] *Kastorus*, i. 201. 1, *Afrikani*, vi. 1479). Greek employs *κ* for all three Latin letters.

As to the approximate character of *k* and *q* and of *c* and *g* before consonants and back vowels there has never been any doubt. Scholarly tradition is unanimous, and so, in general, is the evidence of the Romance languages, to the effect that they were back palatal or velar stops. Completely in harmony with tradition are the loan-words such as *καλάνδαι*, Κοῖντος, *κομέτιον*, Γαῖος, Oscan **kvaísstur**, Umbrian **kvestur**,[2] Gothic *Kaisar*, *Qartus*, German *Kalk*.

Before *e* and *i* both *c* and *g* have been variously modified in the Romance languages, as follows:

Latin..........	*centum*	*circus*	*circellus*	*gens*	*gingiva*
Sardinian.......	kentu	kirku		gente	zinzia
Dalmatian......			kercellu		....
Rumanian......		cerc	cercel		gingie
Italian.........	cento	cerco		gente	gengiva
French.........	cent			gent	gencive
Spanish........	ciento	cerco	zarcillo	yente	encia
Portuguese......	cento	cerco		gente	gengiva

Since Latin *c* before *e* and *i* remains a mute in central Sardinia and in Dalmatia, it is certain that there was

[1] Further instances of the confusion between *q* and *c* may be found in Stolz and Schmalz, *Lateinische Grammatik*⁴, p. 106.

[2] See Buck, *Grammar of Oscan and Umbrian*, p. 21.

no general Latin development of that sound away from the full closure of a stop. The case of *g* is not so clear.

That *c* was actually a stop throughout the classical period is shown by the following evidence: (1) The earlier grammarians nowhere speak of a difference in the sound of *c*. How strong this testimony of silence really is appears when we remember their discussions of the sound intermediate between *ĭ* and *ŭ*, although that sound was always short and was chiefly confined to unaccented syllables (pp. 23 ff.), their recognition of velar *l* (p. 80), and the clear notices of *ts* for *ty* (pp. 110 f.). (2) In Umbrian *k* before *e* and *i* was assibilated in some way and a special character (transliterated *ç*) existed in the native alphabet to denote the sound. When Umbrian was written in Latin letters *c* was used for *k* before consonants and back vowels, and *s* for the sibilant or spirant which had developed out of *k* before *e* and *i;* clearly Latin *c* could not naturally be employed for the sound. (3) Latin inscriptions show *k* for *c* before front vowels as well as in other positions; for example, *Keri*, *CIL* i. 46, *Dekem*(*bres*), 844, *Mukianus Markellino*, v. 3555, *pake*, x. 7173. (4) Among the words which in Cicero's day tended to change mutes into aspirates in the Greek fashion were *pulcer* and *Orcivius*, and Quintilian records the pronunciation *chenturiones* (p. 72). It is incredible that there should have been a tendency to aspirate an assibilated *c*. (5) Varro couples *anceps* with *ancora* as a word containing the velar nasal (p. 89). This would perhaps be natural enough if *c* were pronounced as before *e* and *i* in Italian, making the nasal palatal, but it would be impossible if *c* had the sound

of *ts* or of *c* before *e* and *i* in French. (6) Graeco-Roman loan-words indicate that *c* was a mute in all positions; Greek has Κικέρων and the like quite constantly, and the Romans regularly wrote *cedrus*, *cithara*, *Cimon*, etc., although they might have used *k* before *e* and *i* if *c* had suggested a different sound.[1] (7) Celtic and Germanic loan-words show mutes for Latin *c* before front vowels, as in Welsh *cwyr* from *cera*, *ciwdawd* from *civitatem*, Gothic *lukarn* from *lucerna*, German *Kiste* and Dutch *kist* from *cista*, and German *Keller* from *cellarium*.[2]

In most languages, as in English, *k* before *e* and *i* is pronounced farther forward in the mouth than when it is followed by other sounds. Some such difference in the character of Latin *c* has to be assumed as the first stage in the development which has resulted in Italian *cento*, French *cent*, etc., and probably the variation was as ancient as the sound *c* itself.

In Latin, as in many other languages, the palatal vowels, *e* and *i*, gradually brought the articulation of a preceding *c* farther and farther forward in the mouth, until the closure for the consonant was made in the same place as the narrowing for the vowels.[3] This prepalatal *k* is an unstable sound, which tends to be followed by a consonantal *i*.

[1] Greek κ is still a mute before ε and ι, and consequently we cannot assume a parallel assibilation of this and of Latin *c*.

[2] English *cell*, *cent*, etc., are from the French; while *chest*, like *chin*, owes its assibilation to an English, not a Latin, change of sound.

[3] This sound is not now ordinarily heard in any of the languages of Western Europe, although it formerly existed in several of them. It may be formed by pronouncing English *y* (as in *yet*) and then lifting the tongue until it touches the roof of the mouth.

At this stage, therefore, one might expect confusion between the syllables *ce* and *cie;* and we do in fact find a few forms such as *circiensibus*, *CIL* i. 206. 64 (45 B.C.), etc., *munificientiam*, viii. 32, *facet*, xii. 915 (first or second century A.D.), *deces*, xii. 2086 (558 A.D.);[1] but the variation between *e* and *ie* is no more common after *c* than after other sounds.

Later still *cį* must have become *tį*, and then *į* must have become a sibilant. The former stage may be represented by *intcitamento*, *CIL* xiv. 2165. 14 (first half of fifth century), *bintcente*, Mai, *Inscr. Chr.*, 423 (according to Schuchardt, I, 26), and by Frankish *tins* for *census*, which was probably borrowed in the fifth century.[2] There is no valid evidence of a sibilant element in the pronunciation of *c* before *e* and *i* earlier than the sixth century, except a single epigraphical form, *Pitzinnina*, Rossi, *ICUR*, 404 (392 A.D.).[3]

There is less evidence of the character of *g* before *e* and *i* in the classical period, but what there is indicates that it was a mute. (1) The earlier grammarians never suggest that the letter denoted more than one sound. (2) Nigidius Figulus and Varro cite *ingenuus*, *angeps*, and *ingerunt* as examples of the velar nasal (pp. 88 f.). (3) The fact that the confusion in spelling which we are about to notice does not occur in classical times is strong evidence that *g* was not at that time similar in sound to consonantal *i*.

[1] Other examples in Schuchardt, II, 331 ff., 444 f.

[2] Mohl, *Zeitschrift für romanische Philologie*, XXVI, 595.

[3] The confusion of *ci* and *ti*, which is found in inscriptions from the second century on, cannot indicate that both had become *tsi*. In fact *ci* and *ti* are still distinct in Italian. For a plausible explanation of the facts, see Carnoy, *TAPA*, XLVII, 147.

In most of the Romance languages *g* before *e* and *i* has yielded the same result as consonantal *i*.

Latin	*gens*	*gingiva*	*iungere*	*iacere*
Italian	gente	gingiva	giungere	giacere
French	gent	gencive	joindre	gésir
Spanish	yent	encia	uncir	yacer
Portuguese	gente	gengiva	jungir	jazer

The two sounds began to be confused in inscriptions about 500 A.D.; for example, *Gerosale*, *CIL* xii. 649 (end of the fifth century), *Gianuaria*, xi. 4335 (503 A.D.), *geiuna*, xii. 2193 (527 A.D.), *Genoarias*, xii. 934 (529 A.D.), *Gennara*, Rossi, *ICUR*, 1036 (530–33 A.D.), *trienta*, *CIL* xiii. 5359, *Gen(uarius)*, v. 1717, *Magias*, x. 4545, *congigi*, ix. 2892. The few literary indications of such a confusion at an earlier date, even if they are authentic, can scarcely establish more than a local development. By 500 A.D., however, it is likely that in Italy and Gaul *g* before *e* and *i* had become *i̯*; from which sound have developed the various consonants which the Romance languages exhibit.

D and T[1]

The ancient descriptions of *d* and *t* are intelligible only in part, but they show the general position in which the sounds were articulated.
Terentianus Maurus vi. 331. 199 ff. K.:

> At portio dentes quotiens suprema linguae
> pulsaverit imos modiceque curva summos,

[1] Meyer, *Jahresheft des Vereins schweiz. Gymnasiallehrer*, XXXII, 44 ff.; Carnoy, *TAPA*, XLVII, 145 ff.

tunc *d* sonitum perficit explicatque vocem;
t, qua superis dentibus intima est origo,
summa satis est ad sonitum ferire lingua.[1]

Marius Victorinus vi. 33. 24 ff. K.: *D* autem et *t*, quibus, ut ita dixerim, vocis vicinitas quaedam est, linguae sublatione ac positione distinguuntur. Nam cum summos atque imos coniunctim dentes suprema sui parte pulsaverit, *d* litteram exprimit. Quotiens autem sublimata partem qua superis dentibus est origo contigerit, *t* sonore vocis explicabit.[2]

Martianus Capella iii. 261: *D* appulsu linguae circa superiores dentes innascitur. . . . . *T* appulsu linguae dentibusque impulsis extunditur.[3]

Whether one translate *dentes imos* and *dentes summos* by "lower teeth" and "upper teeth" (Seelmann, pp. 301 f., Lindsay, p. 82) or by "tips of the teeth" and "base of the teeth," Terentianus' description of *d* can apply only to a dental such as French *d*, not at all to an alveolar such as English *d*, in which the tongue does not touch the teeth. The descriptions of *t*, on the other hand, emphasize the alveolar point of contact, but do not exclude the possibility of contact both between the tip of the tongue and the teeth and between the surface of the tongue and the gums. If we

[1] "But whenever the upper surface of the tongue strikes the tips of the teeth and, with moderate curvature, the base of the teeth, it produces the sound of *d* and gives passage to the following vowel; for the sound of *t*, it is enough to strike with the upper surface of the tongue where the upper teeth have their inmost roots."

[2] "But *d* and *t*, which, so to speak, are neighboring sounds, are distinguished by the elevation and position of the tongue. For when at the same time it strikes the tips and the base of the teeth with its upper surface, it produces the letter *d*. But whenever it is elevated and touches the place where the roots of the upper teeth are, it will produce *t* with the assistance of the sound of the following vowel."

[3] Translated on p. 97.

assume that in both *d* and *t* the actual closure was produced between the surface of the tongue and the gums, the more energetic articulation of *t* (pp. 97 ff.) explains the greater importance which the grammarians attach to the gum in the production of that sound. At any rate it is scarcely credible that Latin *d* and *t* differed as much as a superficial reading of the descriptions would suggest (p. 5). Both sounds, then, were similar to English *d* and *t*, except that the tip of the tongue touched the teeth.

In vulgar Latin *di* and *de* before vowels came to have the same sound as consonantal *i*, and they were confused with the latter in spelling, as in *Aiutor*, *CIL* viii. 8637 (527 A.D. ?), xiv. 871, *aiutrici*, x. 2184, *codiugi*, x. 2559, *Madias*, Rossi, *ICUR*, 172 (364 A.D.). Hence *di* yields the same result as consonantal *i* in Italian *giorno*, French *jour* from *diurnus*, Sardinian *rayu*, Italian *raggio*, Spanish *rayo* from *radius*, etc. After *r* and *n*, however, this change did not occur, and it was never the standard Latin pronunciation.

Somewhat later than the vulgar Latin change whose effects have just been discussed, medial *ti* and *te* before vowels and also medial *di* and *de* before vowels in standard Latin, and in vulgar Latin if *r* or *n* preceded, changed the vowel to *s* or *z* (no doubt through the intermediate stage *i̯*). This pronunciation was approved, and consequently it is extensively treated by the grammarians.

Servius iv. 445. 8 ff. K.: Iotacismi sunt quotiens post *ti* vel *di* syllabam sequitur vocalis, et pleurumque supra dictae syllabae in sibilum transeunt, tunc scilicet quando medium locum tenent, ut *meridies*. Quando autem primum locum tenent

etiam sic positae sicut dicuntur ita etiam sonandae sunt, ut *dies*, *tiaras*.[1]

Servius *In* Verg. *Georg.* ii. 126: *Media: di* sine sibilo proferenda est; Graecum enim nomen est, et *Media* provincia est.[2]

Papirius ap. Cassiodor. vii. 216. 8 f. K.: *Iustitia* cum scribitur tertia syllaba sic sonat quasi constet ex tribus litteris, *t*, *z*, et *i*, cum habet duas, *t* et *i*.[3]

There are many misspellings in late Latin inscriptions which are due to the change of *ti* to *ts*. The earliest of these seems to be *Marsia⟨nenses⟩*, *CIL* xv. 2612 of the third century A.D.[4] Other examples are *tersio*, *CIL* xii. 2081 (540 A.D.), *Marsias*, 2094 (579 A.D.), *preziosa*, viii. 13854, *Vincentza*, 16208, *Terensus*, 9927, *Marsalis*, 9942, *Aequisia*, ix. 4158. The same stage of development is seen in Gothic *kawtsjō* for *cautio*. The change of *di* to *dz* led to a confusion between *di* and *z*, which will be illustrated when we discuss the latter sound (p. 115). The Romance languages record both changes in such words as Italian *giustezza*, French *justesse*, Spanish *justeza* from *iustitia*, Italian *piazza*, French *place* from *platea*, Italian *orzo*, Rumanian *orz* from *hordeum*.

[1] "Iotacism takes place whenever a vowel follows *ti* or *di*, and frequently the above-mentioned syllables pass over into a sibilant, that is, when they are medial, as *meridies*. But when they are initial, even in the position before a vowel, they are to be sounded just as they are spelled, as *dies*, *tiarae*."

[2] "Media: *di* is to be pronounced without a sibilant; for it is a Greek noun, and *Media* is a province."

[3] "When we write *iustitia*, the third syllable sounds as if it consisted of the three letters *t*, *z*, and *i*, although it has two, *t* and *i*."

[4] The original of *CIL* xiv. 246 (140 A.D.), which, according to some reports, contained the form *Crescentsian⟨us⟩*, has been lost, and cannot therefore serve to date the change a century or more earlier than is otherwise necessary.

The German pronunciation of Latin, which was borrowed from France, preserves *ts* for *ti* before a vowel.

B and P[1]

That *b* and *p* were labials appears from the passages cited on pp. 96 f. and from the following:

Terentius Scaurus vii. 14. 3 f. K.: *B* cum *p* et *m* consentit, quoniam origo earum non sine labore coniuncto ore respondet.[2]

Martianus Capella clearly defines stops rather than spirants in both cases. As to *p* both scholarly tradition and the Romance languages agree with him, and so do they as to initial *b* also, with the exception of Spanish and a few other dialects.

Even in ancient times, however, *b* must have had a spirant pronunciation under some circumstances. A few examples were given on page 43 of the confusion between *b* and *v* in Latin inscriptions beginning with the first century A.D. Many others have been collected by Parodi, *op. cit.*, who has also reprinted (pp. 185 ff.) some passages in which the grammarians give directions as to the correct use of the letters *b* and *v*. The Romance languages show that it was between vowels that *b* became a spirant; for while most of them still retain the mute in other positions, we regularly find such forms as Sardinian *devere*, Italian *dovere*, French *devoir* from *debere*, Rumanian *aveà*, Italian *avere*, French *avoir* from *habere*.

Before there could be confusion between *b* and *v* both must have become spirants, at least in some local

[1] Parodi, *Romania*, XXVII, 171 ff.

[2] "*B* harmonizes with *p* and *m*, since their origin corresponds, the mouth being energetically closed."

or class dialect. We must therefore conclude that, in the first century, certain persons in Italy, especially at Pompeii, pronounced *v* and intervocalic *b* as a bilabial spirant. Probably this was not for some hundreds of years a widespread pronunciation.

Among the cases in which we know that the Romans used an analogical instead of a phonetic spelling are the digraphs *bs* and *bt*, which were regularly pronounced *ps* and *pt*.

Quintilian i. 7. 7: Quaeri solet in scribendo praepositiones sonum quem iunctae efficiunt an quem separatae observare conveniat, ut cum dico *obtinuit;* secundam enim *b* litteram ratio poscit, aures magis audiunt *p*.[1]

Terentius Scaurus vii. 27. 11 ff. K.: Non carent quaestione etiam *plebs* et *urbs* et *Pelops*, quae Varro ita distinguit ut per *b* et *s* ea nominativo casu putet esse scribenda quae eandem litteram genitivo singulari reddant, ut *plebs plebis*, *urbs urbis*, ea vero per *p* et *s* quae similiter genetivo eiusdem numeri in *pis* excurrant, ut *Pelops Pelopis*. Sed nobis utrumque per *ps* videtur esse scribendum, quoniam ex his *ψ* littera constet quam genetivo diximus aut in *bis* aut in *pis* exire.[2]

Velius Longus vii. 61. 5 ff. K.: De qua scriptione illud quaeritur, utrum per *p* an per *b* et *s* debeat scribi, quoniam ea quae apud nos *ψ* litteram sonant putant plerique per *p* et *s* scribenda,

[1] "In regard to the writing of prepositions, it is often inquired whether it is proper to observe the sound which they have in composition or when separate, as when I say *obtinuit;* for analogy demands *b* as the second letter, but the ears hear rather *p*."

[2] "*Plebs*, *urbs*, and *Pelops* are also subject to dispute; Varro distinguishes them in such a way that he thinks that those words should be written with *bs* in the nominative which have the same letter in the genitive singular, as *plebs plebis*, *urbs urbis*, but those with *ps* which in the genitive of the same number end similarly in *pis*, as *Pelops Pelopis*. But to me it seems that both classes should be written with *ps*, since of these consists the letter *ψ*, which, as I have said, becomes either *bis* or *pis* in the genitive."

quoniam et Graeci pronuntiaverunt ψ litteram constare ἐκ τοῦ πῖ καὶ σ. Sed qui originem verborum propriam respiciunt per *b* scribunt.[1]

The orthography *ps*, *pt* is common in inscriptions and manuscripts.

X

The composite character of *x* is clearly stated by the grammarians; for example:

Terentianus Maurus vi. 332. 244 ff. K.:

> Mixtura secundae (*sc. x*) geminum parat sonorem,
> quia *c* simul et quae prior est (*sc. s*) iugando nisum
> retrorsus adactam solidant premuntque vocem.[2]

Marius Victorinus vi. 34. 19 f. K.: (*X*) per coniunctionem *c* et *s*, quarum et locum implet et vim exprimit, ut sensu aurium ducemur, efficitur.[3]

Martianus Capella iii. 261: *X* quicquid *c* et *s* formavit exsibilat.[4]

Diomedes i. 425. 34 f. K.: *X* littera composita, quam ideo duplicem dicimus quoniam constat ex *c* et *s* litteris.[5]

[1] "In regard to this writing there is the following question, whether one should write *ps* or *bs*, since many writers think that those Latin words which have the sound of the letter ψ should be written with *ps*, since even the Greeks have declared that ψ consists of π and σ. But those who have regard to the origin of words write with *b*."

[2] "A combination produces the double sound of *x*, because *c* and *s*, by uniting their force, drive back, strengthen, and check the following vowel."

[3] "*X* is formed by the combination of *c* and *s*, whose place it fills and whose force it expresses, as we shall be convinced by the perception of the ears."

[4] "*X* whistles out what *c* and *s* have formed."

[5] "*X* is a composite letter, which we call double, since it consists of *c* and *s*."

Abundant confirmatory evidence is afforded by the tradition of the schools, and by loan-words in various languages. Inscriptions often exhibit redundant spellings such as *vixsit* and *vicxit*, and not infrequently they have *cs*, as in *vicsit*, *CIL* ii. 551, *ucsor*, iii. 597. The most conclusive proof of all is to be found in the etymology of numerous words such as *dux*, *dixi*, *rex*, *rexi*, and in the change of *x* to *c* in *ecfero*, etc., and to *s* in late Latin and the Romance languages (*visit*=*vixit*, *CIL* vi. 2662, etc., *milex*, vi. 37, etc.).

Z

In early times the Romans represented Greek ζ by *s* or *ss* (*sona* for ζώνη, *comissor* for κωμάζω), an orthography which must have reflected the Hellenistic pronunciation of ζ as *z* rather than *dz*, the sound which seems to have prevailed among the Italian Greeks from whom the Etruscans, Oscans, and Umbrians borrowed their alphabet (pp. 190 f.). It is at any rate certain that when, in the second or first century B.C., the Romans adopted the Greek letter Z they were imitating Hellenistic Greek. Consequently the approved pronunciation in Latin must have been similar to the sound of English or French *z*. This inference is borne out by the passage from Velius Longus quoted below.

Nevertheless the sound *dz* was heard in Italian Greek, and probably it was sometimes employed by speakers of Latin who were familiar with Italian Greek. Therefore when *di* and *de* before a vowel became *dz* (p. 110), *z* was frequently written in their place; for example, *Azabenicus*, *CIL* viii. 10337, 10338, 10362, *Zadumene*, ix. 4326, *zeta*=*diaeta*, viii. 9433, 9910, *z<es>*, v. 1667,

zebus, xiv. 1137; *Zodorus*, viii. 9139, 9742, xiv. 2325; *Ziomedis*, viii. 10839; *Dzoni*, v. 6215; *Zonysati*, v. 1647; *Zonisius*, viii. 7933; *Kalenzonis*, viii. 9114; *oze*, viii. 8424 *Add*. The reverse error appears, for example, in *baptidiata*=*baptizata*, Rossi, *ICUR*, 805 (459 A.D.). Italian preserves both this orthography (*orzo*, *mezzo*) and the Oscan-Umbrian use of *z* for *ts* (*grazie*).

The Roman grammarians record the pronunciation of *z* as *zd*, no doubt in imitation of their Greek predecessors, and also the pronunciations *dz* and *z*, which they actually heard.

Velius Longus vii. 51. 1–20 K.: Atque has litteras (*x*, *z*) semivocales plerique tradiderunt. Verrio Flacco placet mutas esse, quoniam a mutis incipiant, una a *c*, altera a *d*. Quod si quos movet quod in semivocalem desinant, "Sciant," inquit, "*z* litteram per *sd* scribi ab iis qui putant illam ex *s* et *d* constare, ut sine dubio muta finiatur."[1]

Mihi videtur nec aliena Latino sermone fuisse, cum inveniatur in *carmine Saliari*, et esse aliud ζ, aliud σίγμα καὶ δ, nec eandem potestatem nec eundem sonum esse, sed secundum diversas dialectos enuntiari. Dores enim scimus dicere μελίσδειν, et ipsum παίζειν apud alios dicitur παίσδειν. . . . . Denique si quis secun-

[1] "Many writers have recorded that *x* and *z* are semivowels. Verrius Flaccus thinks that they are mutes, because they begin with mutes, one with *c*, the other with *d*. But if any are influenced by the fact that they end in a semivowel, he says, 'Let them understand that *z* is written with *sd* by those who think that it consists of *s* and *d*, so that it undoubtedly ends in a mute.'

"To me it seems that *z* was not foreign to the Latin language, since it is found in the *Carmen Saliare*, and I think that ζ is one thing, and σδ another, and that they do not have the same value or the same sound, but that they are pronounced according to the several dialects. For we know that the Dorians say μελίσδειν, and even παίζειν is spoken as παίσδειν in certain places. . . . . Finally, if anyone wants to investigate this letter by the natural method, he will find that it is not a composite letter, if only he tests it with an unprejudiced ear. For it can

dum naturam vult excutere hanc litteram, inveniet duplicem non esse, si modo illam aure sinceriore exploraverit. Nam et simpliciter scripta aliter sonare potest, aliter geminata, quod omnino duplici litterae non accidit. Scribe enim per unum z et consule aurem: non erit ἀζηχής quo modo ἀδσηχής, sed geminata eadem ἀζζηχής quo modo ἀσσηχής. Et plane si quid supervenerit me dicente sonum huius litterae invenies eundem tenorem a quo coeperit.

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have one sound when written singly, another when doubled, which does not happen at all to a composite letter. For, write with one ζ and consult the ear; ἀζηχής will not sound like ἀσσηχής, but if ζ is doubled, ἀζζηχής will sound like ἀσσηχής. And clearly, whatever sound is added, while I prolong the sound of this letter, you will find that it is the same tone with which it began."

CHAPTER III

THE GREEK SOUNDS[1]

A

In modern Greek α has approximately the sound of *a* in English *father*. The same value is indicated by the correspondence with Latin *a* (p. 14), and also by Greek loan-words in other languages (*Amtialkidasa* for Ἀντιαλκίδου on Indian coins, Gothic *alabalstraún*, *apaústaúlus*, Armenian *p'alarik* for φαλαρίς), and by foreign loan-words in Greek (βραχμᾶνες, Γάγγης, Γανδάραι, or Γανδάριοι for Sanskrit *brahmānas*, *Gaṅgā*, *Gandhārās*).

In Attic, Ionic, and Hellenistic Greek α seems to have inclined to an *e*-sound; for ᾱ became η, and α+ε contracted into ᾱ, while α+ο contracted into ω (ἐτιμᾶτο, ἐτιμῶντο). Furthermore αι has in modern Greek become identical with ε while αυ has retained α and

[1] Ellis, *The English, Dionysian, and Hellenic Pronunciations of Greek*, London, 1876; Blass, *Über die Aussprache des Griechischen*, third edition, Berlin, 1888; Blass, *The Pronunciation of Ancient Greek*, translated by Purton, Cambridge, 1890; Zacher, *Die Aussprache des Griechischen*, Leipzig, 1888; Hatzidakis, Ἀκαδημεικὰ ἀναγνώσματα εἰς τὴν Ἑλληνικὴν . . . . γραμματικήν (especially Vol. I, 284–484), Athens, 1902; Hirt, *Handbuch der griechischen Laut- und Formenlehre*, second edition (especially pp. 78–94), Heidelberg, 1912; Brugmann, *Griechische Grammatik*, fourth edition (especially pp. 29–187), by Thumb, Munich, 1913; Kühner, *Ausführliche Grammatik der griechischen Sprache*, first part, third edition (especially Vol. I, 46–59), by Blass, Leipzig, 1896; Buck, *Introduction to the Study of the Greek Dialects* (especially pp. 15–79), Boston, 1910; Thumb, *Handbuch der griechischen Dialekte*, Heidelberg, 1909; Lloyd, "The Restored Pronunciation of Greek," *Academy*, XLIX, 180, 202 f., 243, 266 f., 286 f., 326 f., 450 f., 491 f.; Snow, "On the Pro-

changed υ into a spirant.[1] A similar nature for Elean α is indicated by the fact that in that dialect η was often written with α and by the Elean change of ε to α under certain conditions. In the other dialects there is less evidence, but there is nowhere proof that α inclined to an *o*-sound. At least in Attic, Ionic, and Elean α was rather like English *a* in *ask*, as this is pronounced in Northern England and in the schoolrooms of Boston, than like *a* in *far;* it was more like French *a* in *patte* than in *pâte*.

I

In modern Greek ι, η, υ, ει, οι, and υι all have the value of *i* in English *machine*. This state of affairs cannot be original; the first writers would not have invented six ways of writing one sound. Furthermore we find that each one of the six is in early Greek usually confined to positions where etymological considerations would lead us to expect it; e.g., ἴδμεν:Latin *video*, English *wit;* ἔθηκα:Latin *feci;* ὗς:Latin *sus;* δείξω:Oscan

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nunciation of Ancient Greek," *CR*, IV, 293 ff.; Vollgraff, "La prononciation du grec," *Revue de l'Université de Bruxelles*, I, 465 ff.; Weemaes, "La prononciation du grec," *Musée Belge*, IV, 38 ff.

Important collections of material are G. Meyer, *Griechische Grammatik*, third edition, Leipzig, 1896; Meisterhans, *Grammatik der attischen Inschriften*, third edition, by Schwyzer, Berlin, 1900; Kretschmer, *Die griechischen Vaseninschriften ihrer Sprache nach untersucht*, Gütersloh, 1894; Mayser, *Grammatik der griechischen Papyri aus der Ptolemäerzeit*, Leipzig, 1906; Thumb, "Die griechischen Lehnwörter im Armenischen," *Byz. Z.*, IX, 388 ff.; Kern, "Zur Geschichte der Aussprache des Griechischen, Wiedergabe indischer Wörter bei griechischen Autoren," *Ellas*, I, 1 ff., 183 ff.; II, 85 ff.; Krauss, *Griechische und lateinische Lehnwörter im Talmud, Midrasch, und Targum*, 2 vols., Berlin, 1898–99.

[1] This contrast, if it stood alone, would not amount to proof; a similar contrast in Latin is not significant.

deicum "dicere," *οἰνή*: Latin *unus* (early Latin *oino*); *ἰδυίας*: Sanskrit *vidúsyās* (*υι* from *usį*).

As to just one of these sounds, *ι*, modern Greek and considerations of etymology are in harmony. Greek *ι*, furthermore, usually corresponds to *i* in loan-words (*Ilium*, *philosophus*, *κίρκος*, Τίτος; Gothic *Israel*, *Filippus;* Sanskrit *Diyamēdas* for Διομήδης, Χαβηρίς for Sanskrit *Kāvērī*).

It is certain that in Attic Greek long and short *ι* did not differ in the same way as Latin long and short *i*. (1) The analogy of the *e*-sounds would make natural either identical quality of the long and short sounds, as in *ε* and *ει*, or a long vowel more open than the short, as *η* was more open than *ε*. There would be no analogy in Greek for a more open short vowel (pp. 9 f.). (2) If *ῐ* had had the same quality as Latin *ĭ*, the latter would not have been represented by Greek *ε* in such words as *κομέτιον*, Καικέλιος, etc. (p. 18).

There is some evidence that *ῑ* was an open *i*-sound. (1) In several words it is represented by Latin *ĭ* (*crepĭda* from *κρηπῖδα*) or even *ē* (*Chrestus* is common in inscriptions, *bolētus* for βωλῖτης). (2) The Romance languages likewise indicate open *i* or even *e* in Greek words that got into vulgar Latin;[1] for example, Italian *cresima*, French *crème* from *χρῖσμα*; French *chrétien* from Graeco-Latin Χριστιανός, Italian *artetico* from *ἀρθρῑτικός*, French *armoise* from *'Αρτεμῑσία*. Both kinds of evidence are weakened, however, by the fact that *ῐ* also seems sometimes to yield Latin *e* (*cercinus* from *κιρκίνος*, *absentium* from *ἀψίνθιον*, *Antechristus*, etc.), and, as we have just seen, it is impossible to suppose that *ῐ* was an open *i*.

[1] See Claussen, *Rom. Forsch.*, XV, 855 ff.

E, H, and EI

In the earliest form of the Greek alphabet, and in most dialects at the beginning of our records, ε represented an *e*-vowel of any quantity or origin and ει a true diphthong, while H was a mark of aspiration. This was the case, for example, in the Chalcidian alphabet which the Romans borrowed; the Romans did not, as some of the ancient grammarians declare, reject Greek η from their alphabet as a superfluous character, but merely borrowed the letter in its original value. The Hebrew name of the letter is *cheth*, and in Phoenician as in Hebrew it denoted a strong spirant. When the Greeks made it a symbol for mere aspiration they accordingly changed its name from *chēt*(*a*) to *hēta*, and thus it was usually called in early Greece.

The Ionic Greek of Asia Minor early lost the rough breathing in all words, including, of course, the name of the seventh letter, which thus became ἦτα. Now every other name of a letter, as far as we know, began with the sound which the letter represented, and consequently ἦτα came to be used in East Ionic for the long *e*-sound. This innovation and the use of Ω (p. 135) are the essential features of the Ionic alphabet—the alphabet which spread over the Greek world, as a result of the preponderant wealth and civilization first of the Ionic cities and later of Athens.

The vowel sound first denoted by η must have been different in quality from ε; for in the earliest inscriptions ε denotes not only *ĕ* but also the *ē* which had resulted from the lengthening of ε or the contraction of ε+ε; for example, ὅτι ἂν οἱ μνήμονες εἰδέωσιν, τοῦτο καρτερὸν ἔναι, *SGDI* 5726. 20 f. (Halicarnassus, before

454 B.C.). Since η was used not only for original ē but also for original ā (μνήμονες corresponds to μνάμονες of other dialects) it is clear that η differed from ε in being nearer to α; that is, it was a more open *e* than ε was. The same conclusion follows from the Ionic contraction of ε+α to η (ἦν from ἐάν); for the product of contraction must be either identical with one of the original sounds or between them, and the former alternative does not represent the facts in this case.

In the Ionic of some of the islands (Naxos, Ceos, and an inscription of Amorgos) original ā had not yet become identical with original ē when the new form of the alphabet was introduced, and so η was used only for the sound which had developed out of original ā, while ε was employed for original ē (Νικάνδρη μ' ἀνέθε̄κεν, *IG* xii. v, p. xxiv=*SGDI* 5423). In these islands at least the sound denoted by η was a very open *e;* and yet the use of the character must have come to them from their eastern neighbors who had lost the rough breathing, and the Naxians undoubtedly applied the new vocalic character to that one of their long *e*-vowels which was most similar to the East Ionic η. Hence we must again infer that η was an open *e* in East Ionic.

In the meantime ει was used for the original diphthong, as in the sentence cited above from *SGDI* 5726, and, no doubt, for the contraction of ε+ι, as in εἶδον. The sound must originally have been that indicated by the spelling (cf. Cyprian, *pe-i-se-i*=πείσει, *SGDI* 60. 12, etc.). In the course of the fifth century, however, ει came to be used also for the result of the contraction of ε+ε (εἶχον, *SGDI* 5726. 30) and for a lengthened ε

(εἶναι occurs five times in *SGDI* 5726, and ἐ̄ναι three times). We conclude that ει and ε̄ were by this time identical in sound, and, since the whole tendency of the Greek language was to develop diphthongs into monophthongs rather than the reverse, it is likely that the diphthong had become a close ē.

When, in the fifth century, the Athenians borrowed the Ionic alphabet, they too employed η for both original ā and original ē, while ε was used for original ĕ and ει for ē which had resulted from the lengthening of ε or from the contraction of ε+ε. The inference is that these vowels had the same quality in the Attic of the fifth century as in Ionic. Further evidence that η was originally an open ē in Attic is furnished by the Attic contraction of ε+α to η (γένη from γένεα); for η must therefore have been intermediate between ε and α.

A particularly cogent proof of the open sound of η in classical times is furnished by the spelling of a sheep's cry as βῆ βῆ.

Cratinus 43 K: ὁ δ' ἠλίθιος ὥσπερ πρόβατον βῆ βῆ λέγων βαδίζει.[1]

Aristophanes fr. 642 K: θύειν με μέλλει καὶ κελεύει βῆ λέγειν.[2]

Hesychius: βηβῆν· πρόβατον.

A sheep's cry does not, of course, contain a pure vowel sound, and one can scarcely say whether it is nearer to the *a* of *father* or of *care;* but it has little resemblance to any vowel closer than the latter.

[1] "The fool goes about like a sheep saying 'ba ba.'"

[2] "He is going to offer me in sacrifice, and he tells me to say 'ba.'"

In Attic, as in Ionic, the diphthong ει was originally kept distinct from lenghtened ε (*hιερεῖον*, ἐ̄ναι, *IG* i. Suppl. ii. 27 *b* 39, 23); but once in the early sixth century (*IG* i. 8 B) and with increasing frequency in the fifth century the digraph is found for ε̄. The adoption of the Ionic alphabet seems in this matter merely to have favored a development which native tendencies had initiated. The considerations which led us to suppose that the common sound resulting from ει and lengthened ε was a close *ē* apply to Attic as well as to Ionic. Furthermore we know that the Attic sound presently became an *i*-sound, and close *ē* is the usual intermediate stage between *ei* and *ī*.

When the Ionic alphabet was introduced into other dialects η seems everywhere to have been used for an open *ē* and ει for a close *ē*. Consequently we conclude that those dialects which represent both original *ē* and lengthened ε by η had only an open *ē*, while the use of η for original *ē* and ει for lengthened ε indicates a distinction similar to that in Ionic and Attic. To the former class belong Arcadian, Cyprian, Elean, Laconian, Heraclean, and Cretan. Most of the others belong in this matter with Ionic and Attic.

In two dialects, Boeotian and Thessalian, even original *ē* was represented by ει, indicating that the sound had become a close *ē*. The Boeotian vowel system is particularly important, since it furnishes another demonstration of the value of η and ει in the Ionic alphabet.

Early in the fourth century the Boeotians borrowed the Ionic alphabet in the form in which it was used in Attica. Since, however, the Boeotian vowels had

developed farther than the Attic in the direction of Modern Greek, Boeotian words look, as they must have sounded, very different from Attic. These three examples are typical:

	αι	η	ει	ι
Attic	καί	Θηβαῖος	ἔχει	
Boeotian		κή	Θειβῆος	ἔχι

Since the several letters and digraphs have the same value in the two dialects, the Boeotian changes justify us in arranging them in the above order; for in each case Boeotian has shifted the sound one point to the right. The first sound in the series is, as we shall see (p. 141), a diphthong, and the Boeotian change was undoubtedly a monophthongization. Now the monophthong resulting from *ai* is commonly either open *e*, as in modern Greek and in the Romance languages, or *a*, as in Anglo-Saxon *āgen*: Gothic *aigan* (English *own*). The latter change cannot be assumed for Boeotian, since the vowel would have been written α. The third sound in the series can scarcely be a diphthong, since it results in Boeotian from an original monophthong (open *ē*) and develops into a monophthong (*ī*); for original *ē*, having passed through the stage represented by ει, came to be written ι in the latest Boeotian inscriptions, as παρῖς for earlier παρεῖς = Attic παρῆν (Buck, p. 23). Ει, then, was an *e*-sound between η and ι. We must infer that Attic η was an open *ē* and ει a close *ē* in the fourth century B.C., as in the fifth.

The evidence is conclusive that the itacistic pronunciation of η was foreign to Attic and to standard

Hellenistic Greek for a long while after the classical period. Says Socrates in Plato's *Cratylus* 418 C:

> νῦν δὲ ἀντὶ μὲν τοῦ ἰῶτα ἢ εἶ ἢ ἦτα μεταστρέφουσιν, ἀντὶ δὲ τοῦ δέλτα ζῆτα, ὡς δὴ μεγαλοπρεπέστερα ὄντα.[1]

It appears from the sequel that Plato has in mind a fancied derivation of ἡμέρα (written HEMEPA in the old Attic alphabet) from ἵμερος, and such etymologizing requires no comment. Nevertheless there is no reason to doubt Plato's word when he says that the substitution of η for ι is a "change" (μεταστρέφω); and he certainly would not have called η more "impressive" than ι if the two had been identical in sound.

In the first century B.C. Dionysius of Halicarnassus finds η the most pleasant in sound of all the vowels except α, while ι is the least pleasant.

> *Comp. Verb.*, pp. 51. 12 ff. UR: αὐτῶν δὲ τῶν μακρῶν πάλιν εὐφωνότατον μὲν τὸ α, ὅταν ἐκτείνηται· λέγεται γὰρ ἀνοιγομένου τε τοῦ στόματος ἐπὶ πλεῖστον καὶ τοῦ πνεύματος ἄνω φερομένου πρὸς τὸν οὐρανόν. δεύτερον δὲ τὸ η, διότι κάτω τε περὶ τὴν βάσιν τῆς γλώττης ἐρείδει τὸν ἦχον ἀλλ' οὐκ ἄνω, καὶ μετρίως ἀνοιγομένου τοῦ στόματος. τρίτον δὲ τὸ ω· στρογγυλίζεται γὰρ ἐν αὐτῷ τὸ στόμα καὶ περιστέλλεται τὰ χείλη τήν τε πληγὴν τὸ πνεῦμα περὶ τὸ ἀκροστόμιον ποιεῖται. ἔτι δ' ἧττον τούτου τὸ υ. περὶ γὰρ αὐτὰ τὰ χείλη συστολῆς γινομένης ἀξιολόγου πνίγεται καὶ στενὸς ἐκπίπτει ὁ ἦχος. ἔσχατον δὲ πάντων τὸ ι· περὶ τοὺς ὀδόντας τε γὰρ ἡ κροῦσις τοῦ πνεύματος γίνεται μικρὸν ἀνοιγομένου τοῦ στόματος καὶ οὐκ ἐπιλαμπρυνόντων τῶν χειλῶν τὸν ἦχον.[2]

[1] "But now they change from iota to epsilon or eta, and from delta to zeta, because of course these sounds are more impressive."

[2] "Again, of the long vowels themselves the most euphonious is α, when prolonged; for it is pronounced with the mouth open to the fullest extent, and with the breath forced upward to the palate. η holds the second place, inasmuch as it drives the sound down against the base

Oriental loan-words indicate that Greek η continued to be an *e*-vowel in the East from Alexander's time until long after the beginning of the Christian Era. Indian coins have *Heliyakreyasa* = Ἡλιοκλέους and *Diyamedasa* for Διομήδου, while Greek Μηρός and Χάβηρις represent Indian *Mēruṣ* and *Kāvērī*.[1] In Armenian of the fifth century A.D. η is represented by *ē* twenty-five times, by *e* three times, and by *i* only six times.[2] Even at the present day η is an *e*-vowel under some conditions in Pontic Greek.

The consistent representation of η by *ē* and of ει and ῑ by *ei* in Gothic indicates a survival of the old distinction in the North until the fourth century A.D.

In Egyptian papyri η begins to be confused with ει in the second century B.C., but since it is also confused with ε we must assume that the several sounds had approached one another in some way rather than that they had all become identical (p. 129).

In Attic inscriptions the confusion between η and ι begins with Λυκομίδης, *IG* iii. 1119. I. 19 (150 A.D.). It is likely that by this time η had become an *i*-vowel in Attica. Possibly standard Greek retained the old distinction much longer. Even as late as the fourth century A.D. the grammarians speak of η and ε as being

of the tongue and not upwards, and the mouth is fairly open. Third comes ω; in pronouncing this the mouth is rounded, the lips are contracted, and the impact of the breath is on the edge of the mouth. Still inferior to this is υ; for through a marked contraction taking place right around the lips, the sound is strangled and comes out thin. Last of all stands ι; for the impact of the breath is on the teeth as the mouth is slightly open and the lips do not clarify the sound."

[1] Kern, *Ellas*, I, 186; Gardner, *Indian Coins*, pp. 23, 31, etc.

[2] Thumb, *Byz. Z.*, IX, 394–96.

similar sounds; but such remarks may be merely traditional.

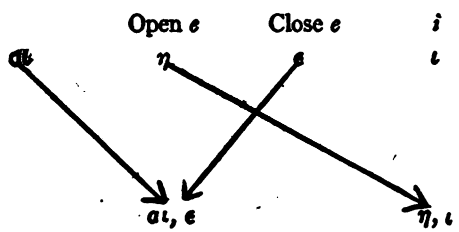
The identical quality of ε and ει in the fourth century B.C. is shown by the name εἶ for the letter ε in Plato *Crat.* 426 C and 437 A, and in the fifth century by the same name in a fragment of Callias (Athenaeus 453 D). How old that name of the letter is we do not know, but it is safe to say that the spelling of it with the digraph does not antedate the change of the original diphthong ει to a close ē in the fifth century. Even stronger evidence of the similarity of ει and ε is furnished by the frequent interchange in inscriptions of the two spellings in the position before vowels. The loss of ι from a diphthong ει (Δεκελεεύς, *IG* ii. 1247. 1—320 B.C.) might be regarded as analogous to such forms as ἐλάας for ἐλαίας and ποέω; but the use of ει for ε (εἰαυτοῦ, *IG* ii. Add. 115 *b* 13—after 350 B.C.) has no parallel in the case of the genuine *i*-diphthongs.[1] Furthermore ε often corresponded to Latin ĭ in loan-words (κομέτιον, Καικέλιος, *piper*, *citrus*—see p. 18); while in the Romance languages Latin ē was confounded with ĭ, it is Greek ε (ĕ) which was confused with Latin ĭ. We must arrange the several sounds of the two languages in some such fashion as this.

Greek	α		η	ε	ι	
Latin	a	ĕ		ē	ĭ	ī

A confusion between ε and αι begins in carelessly written papyri of the second century B.C. (ὁρᾶτε=ὁρᾶται,

[1] It has been suggested (Solmsen, *KZ*, XXXII, 513; Brugmann-Thumb, p. 77) that ε was closer before a vowel than elsewhere; but if ε was identical in quality with ει in other positions, a closer quality before vowels would not favor confusion with ει, but rather the reverse.

P. Eud. 17. 11—before 165 B.C., *βαίνεται=βαίνετε*, *P. Weil* 6. 2. 8—before 161 B.C.). About 100 A.D. *ε* came to be confused with *αι* in Attic inscriptions (Ἐρικαιεύς, *IG* iii. 1100. 13—110 A.D., Πλατεαῖς, iii. 127. 2, 6—between 117 and 134 A.D.), and the confusion became very common about 150 A.D. The two are identical in value in modern Greek, both representing an open *e*-sound. As far as quality is concerned the identity dates from about 150 B.C. in Egypt and 150 A.D. in Attica (p. 142), although the difference in quantity probably lasted longer. E and *η* thus reversed their original positions as far as quality is concerned. The development is indicated by the diagram.



E and *η* must have had identical quality at some time between the beginning and close of the development, although they remained distinct in quantity until a new distinction in quality had developed. As a matter of fact a confusion between *ε* and *η* appears in papyri, beginning with Δεμήτριος, *P. Petr.*^{2} 56. *b* 5 (260 B.C.).

The further development of *ει* in Attic from the close *e*-sound to the *i*-sound seems to have been rapid. Even in the fourth century there are a few instances of the confusion of *ει* and *ι* (*συμφέριν*, *IG* ii. 243. 35). In the

third century it is so common that we must infer identical pronunciation of ει and ι on the part of many persons, and the change must have penetrated the speech of the whole community by 100 B.C. in view of the great frequency of misspellings. The equivalence of ῑ and ει in the first century B.C. is presupposed by a remark which Gellius quotes from Nigidius Figulus:

Gellius xix. 14. 8: Alio deinde in loco ita scriptum: "Graecos non tantae inscitiae arcesso, qui *ου* ex *ο* et *υ* scripserunt, quantae, qui *ει* ex *ε* et *ι*;[1] illud enim inopia fecerunt, hoc nulla re subacti."[2]

The Greek schoolmasters of Roman and Byzantine times devoted as much effort to distinguishing between ει and ι as our teachers devote to the proper use of *ie* and *ei*. For example, the medieval dictionary called *Etymologicum Gudianum* has this article (289. 31 = Herodian ii. 411. 26 ff. L.):

Κάβιροι: ὁ Ἀλεξίων διὰ τοῦ ι, ὡσαύτως ὁ Φιλόξενος· καὶ Ἡρωδιανὸς λέγει τὴν παράδοσιν δίφθογγον ἔχειν καὶ ἴσως συνέδραμε τῷ μάγειρος, πέπειρος, ὄνειρος.[3]

In the position before a vowel, however, ει was confused, not with ι, but with η (εὐσεβῆας, *IG* ii. Suppl. 624 *b* 25—before 159 B.C., ⟨Γερ⟩μανικῆοις, iii. 1079. 25—45 A.D., etc.). Apparently ει in this position con-

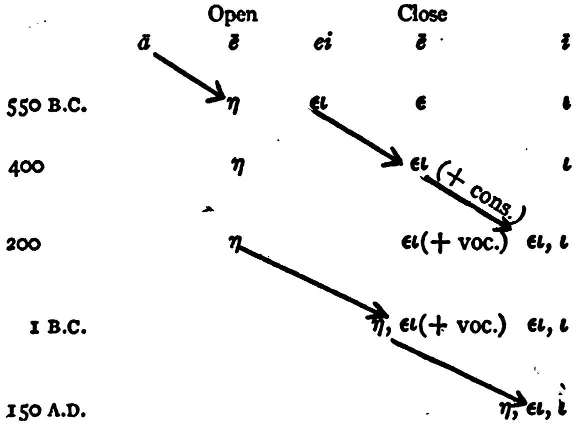
[1] The text is corrupt, and editors restore variously. It appears to me that the syntax of *subacti* requires that the antecedent of the second *qui* shall be *Graeci*, and consequently that the letters shall be Greek.

[2] "Then in another place he writes: 'I do not charge the Greeks with such folly for writing *ου* with *ο* and *υ* as for writing *ει* with *ε* and *ι*; for the former they did of necessity, but the latter under no sort of compulsion.'"

[3] "Κάβιροι: Alexion writes it with ι, likewise Philoxenus. Herodian says that tradition gives a diphthong, and the word corresponded with μάγειρος, πέπειρος, ὄνειρος."

tinued to be pronounced as a close *ē*; and since the digraph ει now regularly denoted an *ī*-sound, there was no unambiguous way of writing the close *ē*. Hence η was sometimes used in this value. In time the development of η in the direction of *ī* must have brought it to a value identical with that of ει before vowels. It is likely that this stage is marked by the climax of the confusion between η and ει in the time of Augustus.

The history of α, η, ει, and ῑ in Attic and Hellenistic Greek is roughly diagrammed in the accompanying figure.



In the Attic of the latter part of the fifth century B.C. η was an open *ē*, similar in quality to French *è* or even, it may be, to English *a* in *care* when this is pronounced as a monophthong; ε was a short vowel with about the quality of French *é*, and much like the first vowel of English *vacation;* ει of any origin was a long vowel of the same quality as ε, similar to the vowel of English *raid* when this is pronounced as a monophthong.

Υ

Greek *υ* corresponds with *u* of the related languages in numerous inherited words, as *ζυγόν*: Sanskrit *yugam*, Latin *iugum*, Gothic *juk; ὗς*: Sanskrit *sū-karas*, Latin *sūs*, Anglo-Saxon *sū*. Although nearly all modern Greek dialects make *υ* an *i*-sound, Tsakonian, the modern form of Laconian, preserves a *u*-vowel, as in *žugo* from *ζυγόν*. That Laconian had a normal *u* in ancient times is further shown by the spelling of Laconian glosses; for example, Hesychius:

> τούνη· σύ. Λάκωνες.
> οὐδραίνει (i.e., ὑδραίνει)· περικαθαίρει. Λάκωνες.

In Boeotian inscriptions from about 350 B.C. we find *ου* for original *υ*, and this must indicate the retention of normal *u* in that dialect. In some other dialects we may infer a similar pronunciation of *υ*. In some of them *ο* is used for *υ* or *υ* for *ο*, as in Hesychius:

> μοχοῖ· ἐντός. Πάφιοι (i.e., μοχοῖ = ἐν μυχῷ),

and Lesbian, Arcadian, and Cyprian *ἀπύ*. The letter *ϙ* was used in early times for the *k*-sound before back vowels (Corinthian *καϙόν*, *hιϙομες*), and it appears also before *υ*, as in Chalcidian *ϙύϙνος*, *λήϙυθος*. Further evidence for Euboean Ionic is afforded by the modern place-names *Kumi* (Κύμη) and *Stura* (Στύρα). As to the Laconian and Chalcidian colonies in Italy, see p. 36.

That *υ* was a normal back vowel even in Attic and Ionic when the system of writing was developed is shown by the fact that the character retained that value when it was the second member of a diphthong (pp. 146 f.). At an early date, however, Attic and

East Ionic υ was altered in some way that involved an approach to an *i*-sound. One might be inclined to infer that East Ionic υ was still a normal vowel about 500 B.C. from such words as Κῦρος for Persian *Kuruš*, Καμβύσης for *Kambujiya*, Κυαξάρης for *Huvaxštra*, and Γωβρύας for *Gaubruva;* but equally ancient transliterations with ο, such as Μαρδόνιος for *Marduniya* and Καππαδοκία for *Katpatuka*, suggest that both υ and ο were inexact approximations to Persian *u*. The suspicion is strengthened by the use of υ for *vi* in Ὑστάσπης for *Vištaspa* and Ὑδάρνης for *Vidarna*.[1]

Hindoo loan-words of the period from Alexander to the beginning of the Christian Era are parallel with the Persian words. Indian *u* appears sometimes as υ and sometimes as ο, while *Vipāçā* becomes Ὕπανις. Greek υ, on the other hand, is regularly represented by *i* on Indian coins; for example, *Lisikasa* for Λυσίου, *Amitasa* for Ἀμύντου, *Dianisiyasa* for Διονυσίου.[2]

When the Romans came into contact with Attic and Hellenistic Greek there was great difficulty in representing Greek υ in Latin. We find such various forms as *Sisipus*, *CIL* i. 1178, *butirum* (references in *Thesaurus*), *Hypolitus*, *CIL* i. 741, *liquiritia* = γλυκύρριζα, *Quiriace* = κυριακή, iii. 14306. 3, *Moesia* = Μυσία, *lagoena* = λάγυνος, Plautus *Curc.* 78. On the other hand Latin *u* is represented by ο (αὔγορα, *IG* iii. 573, Σπόριος, ii. 953. 7, etc.) or by ου (Ἰούλιος *passim*), but rarely by υ; while κυ often represents Latin *qui* (Ἀκύλας, *IG* iii. 1051,

[1] That this too was an inexact transcription is indicated on the one hand by Ὑρκανία for *Varkana* and on the other by Ἰνταφέρνης for *Vindafarna*. Cf. Hatzidakis, **Ἀναγνώσματα**, I, 388.

[2] Gardner, *Indian Coins*, pp. 29, 51, 61, etc.

Ἀκύλλιος, 578, Τραγκυλλίνης, *IGRRP* i. 672. 9, etc.), and there are a few other examples of *υ* for Latin *i* (Ἀφρυκανήν, *CIG* 1999 *b*, Βαρβυλεία, *IG* iii. 127, Βρυτ⟨αννικοῦ⟩, *IGRRP* i. 577. 4, μυρμύλλων, 773. 1, etc.).[1] The difficulty was finally overcome for educated Romans by the adoption of the foreign sound and the foreign letter. Neither won its way into popular speech.

There was, however, a Latin sound which had some similarity to Greek *υ*, the sound intermediate between *u* and *i* (pp. 23 ff.). Claudius' new letter was employed not only for the Latin sound but also for Greek *υ* in BATHⱵLLVS and NⱵMPHIVS, *CIL* i. i², p. 247, iii. C 3. 27; and the Greek letter is occasionally used for the Latin sound (*unibyriae*, *Byrginio*). Besides, Marius Victorinus, vi. 19. 22 ff. K. (quoted on p. 27), tells us explicitly that *y* is equivalent to the sound intermediate between *u* and *i*.

The use of *ου* for original *u* in Boeotian from about 350 B.C. (Πουθίω, *IG* vii. 2418—about 346 B.C.) is proof that Attic *υ* was no longer a normal *u*; for if it had been, the Boeotians would certainly have continued to use the letter in its original value.

These facts show that Ionic, Attic, and Hellenistic *υ* had shifted from normal *u* in the direction of *i*. That the change did not go so far in antiquity as it has in modern Greek is indicated by part of the evidence just cited, and also by the following. In Attic, Ionic, and Hellenistic inscriptions and in Ptolemaic papyri *υ* and *ι* are rarely confused except in a few words which show assimilation or metathesis (ἥμυσυ, Μιτυληναῖος). Dio-

[1] See Dittenberger, *Hermes*, VI, 281 ff.; Eckinger, *Orthographie*, pp. 40 f., 59 ff., 123 f.

nysius of Halicarnassus, p. 52 UR (quoted on p. 126), finds euphonic difference between *υ* and *ι*. Demotic papyri of the second century A.D. transcribe *υ* by *o* rather than by *i*, and Greek words in Armenian of the fifth century show *ui* as often as *i* for *υ*.[1] Even as late as the tenth century Suidas' great lexicon distinguished between *υ* and *ι*, although it grouped together all words beginning with *η*, *ι*, and *ει*, since these denoted but a single sound, and users of the work would not have known under which letter to search for any particular word.

Since Attic *υ* is sometimes long and sometimes short in the poets, it cannot have been a diphthong (*oi*, *oe*, or the like is suggested by Latin *Moesia*, etc.), and, since the preceding syllable may be either long or short, it cannot have been a combination of a consonant and a vowel (*u̯i* is suggested by Ὑστάσπης, Κύυτος, etc., *i̯u* by Greek words in Armenian, etc.). Probably therefore *υ* was similar to French *u* and German *ü*; such a sound frequently develops from *u* and easily passes into *i*; and such a sound satisfactorily explains most of the evidence given above. It is probable that the sound of *υ* varied somewhat in different parts of the Greek world in Hellenistic times as it certainly did in the classical period.

Ο, Ω, and ΟΥ

The early history of the *o*-vowels was nearly parallel to that of the *e*-vowels. Ω is a modification of O, which was utilized to distinguish the open *ō* from the close *ọ̄*; probably the distinction was first made in the *e*-vowels, and then applied to the *o*-vowels. The spelling *ου*

[1] Hess, *IF*, VI, 134; Thumb, *IF*, VIII, 194 ff.; *Byz. Z.*, IX, 397 ff.

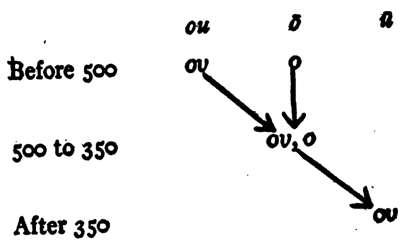
must originally have denoted a diphthong; this sound persisted in some dialects in historic times, as is indicated by Cyprian *a-ro-u-ra-i* = ἀρούραι, *SGDI* 60. 20, *o-vo* = οὐ, 68. 3, etc., and by Cretan σποϝδδάν, 5125. 9, ⟨β⟩οϝσί, 4976, etc.

In the earliest Ionic inscriptions ο is used not only for ŏ but also for ō resulting from the lengthening of ο or the contraction of ο+ο, or ο+ε, while ω is used for original ō and ου for the original diphthong; for example, Προκοννησίο̄, *SGDI* 5531 (Proconnesus, sixth century), τούτο̄ το̂ χρόνο̄ τῶν ὀκτωκαίδεκα μηνῶν, 5726. 24 f. (Halicarnassus, before 454 B.C.). The open sound of ω is proved by the contraction of α+ο and ο+α into ω.

In the course of the fifth century ου came to be used for lengthened ο as well as for the original diphthong (βουλεύοι, βαρβάρους, as well as κέ̄νο̄, etc., *SGDI* 5632—about 475 B.C.). As in the case of ει and ε̄, this indicates that ου and ο̄ were identical; their value, for a while at least, must have been that of close ō.

Upon the introduction of the Ionic alphabet into Attica ω was used as in Ionic for original ō and also for the product of the contraction of α+ο and of ο+α (τιμῶντο, ἡδίω). In Attic inscriptions as well as in Ionic ου originally denoted the diphthong (οὐδέ, *IG* i. Suppl. i. 27 *a* 5—445 or 444 B.C.), while lengthened ο and the product of the contraction of ο+ο, ο+ε, and also of ε+ο were written ο (μισθο̂ντα, *Ath. Mitth.*, IX, 117. 6—sixth century B.C.). We find lengthened ο written ου as early as 500 B.C. (Ηε̄ρακλέους, *IG* i. 360), and in the course of the next century this became the regular spelling. When the confusion began we must suppose that both the original diphthong and lengthened

ο had the value of close *ō*. This sound seems to have been the one in use until about 350 B.C.; for until that date *ο* was frequently used for lengthened *ο* (*Εὐβο̄λίδο̄*, *IG* ii. 8—394 or 393 B.C., *προέδρο̄ς*, ii. 54. 10—363 or 362 B.C.), and occasionally for the original diphthong (*Σπο̄δίας*, *IG* i. 324 *a* i. 21—408 B.C., *ο̄δένα*, ii. Suppl. 54 *b* 60—363 B.C.). Attic inscriptions indicate some such history as is pictured in the accompanying figure.



After the introduction of the Ionic alphabet into the rest of the Greek world, *ω* as well as *η* (p. 124) was everywhere used for the open long vowel. From that time on most dialects distinguished the original long vowel from lengthened *ο* precisely as Ionic and Attic did, but Laconian, Heraclean, Cretan, and also Boeotian employed *ω* for lengthened *ο* and the product of the contraction of *ο*+*ο* as well as for the original long vowel.

In most dialects original *ου* became first a close *ō* and then *ū*, as in Ionic and Attic. In Corinthian the original diphthong and lengthened *ο* were identical from the time of the earliest inscriptions. In Boeotian *ου* came to be used not only for the original diphthong (*οὖτο*, *IG* vii. 3172. 150—between 222 and 200 B.C.) but also, from about 350 B.C., for original *υ*, which in Boeotian

was still a normal *u* (p. 132), as in *ἀργουρίω δραχμὰς μουρίας*, *IG* vii. 3172. 117. Since Boeotian of this period employed the Ionic alphabet in the form in use in Attica, the date of the use of *ου* for normal *u* in Boeotian sets a lower limit for the change of Attic *ου* (close *ō*) to *ū*. That change, as we have just seen, cannot have occurred much earlier than 350 B.C.; we now see that it cannot have been much later than that date.

In loan-words *ου* usually corresponds with normal *ū*; for example, Latin *būtirum*, *Thūcydides*, Ἰοῦστος, Ῥουφῖνος, Gothic *Iudas* for Ἰούδας, Armenian *plakund* for πλακοῦντα. In modern Greek *ου* is still normal *u*.

The ancient name of the letter *ο* was *οὖ*, and this is shown to have been in use in the fifth century B.C. by a fragment of the **Γραμματικὴ Τραγῳδία** of the comic poet Callias (preserved by Athenaeus 453 D), in which the names of the letters are listed as being the names of the *choreutae*. This name, or at least its orthography, could have originated only at a time when *ο* and *ου* had the same quality. Hence *ο* was a close *ọ* in the dialect which originated the name of the letter (Ionic?) at some time prior to the date of Callias' **Γραμματικὴ Τραγῳδία.** Attic *ο* also must have been a close vowel at the time of the contraction of *ο*+*ο* and the lengthening of *ο* under certain circumstances; for otherwise the result would have been the sound which was later written *ω*.

That *ο* was still a close *ŏ* in Hellenistic times is shown by its correspondence with Latin *ŭ* in such words as *amurca*, *purpura*, *ampura* (pp. 32 f.). Such Greek forms as Μόμμιος for *Mummius*, Μαρδόνιος for Persian *Marduniya*, and Σανδρακόττος for Sanskrit

Chandraguptas are at best confirmatory evidence; since Greek had no normal *ŭ*, an inexact transcription was necessary and *o* would very probably have been used even if it had been an open *ŏ*.

In modern Greek *ο* and *ω* are alike both in quality and in quantity. Their quantitative identity dates from the loss of the old quantitative distinctions in general, after the accent had become one of stress (p. 205). The earliest indication of an approach to identical quality is the occasional confusion between them in inscriptions and papyri of the third century B.C., for example, *ὀρθῶς*, *IG* ii. Suppl. 614 *b* 48 (between 294 and 283 B.C.), *οἰκωνόμου*, *P. Rev. L.* 50. 22 (258 B.C.). In Egyptian papyri the mistakes become so common by the second century B.C. that we must infer qualitative identity of *ο* and *ω*. Attic inscriptions do not show such an amount of confusion until the second century A.D. Greek words in Armenian and in the Hebrew *Talmud* indicate that *ο* and *ω* were identical in sound in the Orient by the fifth century A.D.[1]

AI

The writing of two vowel characters in one syllable both in the Greek alphabet and in the Cyprian syllabary must at first have represented a diphthong consisting of those two vowels. That primitive Greek had a diphthongal *ai* in many words where *αι* was later written is indicated by cognate words of the related languages, as *αἶξ*: Armenian *aic*; *αἴθω*: Sanskrit *edhas*, Latin *aedes*, Old Irish *aed*; *λαιός*: Latin *laevus*; *καικίας*: Latin *caecus*,

[1] Thumb, *Byz. Z.*, IX, 393; Krauss, *Lehnwörter*, I, 50 ff.

Old Irish *caech*, Gothic *haihs*. In many other words αι originated in Greek itself in such a way that it must at first have been a diphthong. It resulted from the contraction of α+ι in παῖς (Homeric πάϊς, for example, *Il.* v. 704), in κέραι, dative of κέρας, etc. The αι of the nominative plural resulted from the analogy of the second declension:

ἀδελφούς : ἀδελφοί = ἀδελφᾱ́ς : ἀδελφαί,

and the optative of the first aorist was formed on the analogy of optatives beside indicatives with variable vowel:

ἐλίπομεν : λίποιμεν = ἐλύσαμεν : λύσαιμεν.

Such processes could occur only in case αι stood in the same relation to ᾰ as οι did to ŏ, and the relationship can scarcely have been the same unless both αι and οι were diphthongs.

In modern Greek αι has become the same open *e*-sound that is represented by ε. It remains to determine when the original diphthong was transformed into the modern monophthong.

The contraction of α+ει and α+η to ᾳ (τιμᾷ, indicative and subjunctive) occurred before our records of Attic Greek begin. The change of αι to ᾱ under certain conditions (Ἀθε̄νάᾳ, *IG* i. 351, Ἀθε̄νᾷ, i. Suppl. ii. 373. 65—both of the sixth century B.C., etc.) was also prehistoric. The "crasis" of αι with a following ε in κἀκεῖνος, κᾄστι, etc., was very early. All three changes would have been impossible after αι became an *e*-vowel.

In Boeotian before the adoption of the Ionic-Attic alphabet αι was sometimes written αε, especially at

Tanagra ('Ōκίβαε, *IG* vii. 606—sixth century B.C.). This, like Latin *ae* for earlier *ai* (p. 48), was the first stage of the change to an open *e*. The latter stage had been reached in Boeotian by the time the new alphabet was adopted in the fourth century; consequently η was regularly used in place of original αι (κή, Θειβῆος, etc.; see p. 125). It is therefore clear that Attic αι had not become open *ē* in the fourth century.[1]

Numerous Greek words in Latin and Latin words in Greek show that αι continued to be a diphthong in Hellenistic times; for example, *Achaia*, *CIL* i. 541, *Menaechmus*, *palaestra*, Καικέλιος, Καῖσαρ. Indian coins of the second and first centuries B.C. have *ay* for αι in *Heramayasa* = Ἑρμαίου.[2] Further proof is furnished by Armenian *Kaisr*.

That αι was a diphthong in standard Greek of the Augustan period follows from a discussion of the euphony of the first paragraph of Thucydides by Dionysius of Halicarnassus (*Comp. Verb.*, p. 109, 14–20 UR):

> *Ἔτι πρὸς τούτοις ἡ τῶν φωνηέντων παράθεσις ἡ κατὰ τὴν τελευταίαν τοῦ κώλου τοῦδε γενομένη ἐν τῷ 'καὶ Ἀθηναίων' διακέκρουκε τὸ συνεχὲς τῆς ἁρμονίας καὶ διέστακεν πάνυ αἰσθητὸν τὸν μεταξὺ λαβοῦσα χρόνον· ἀκέραστοι γὰρ αἱ φωναὶ τοῦ τε ι καὶ τοῦ α καὶ ἀποκόπτουσαι τὸν ἦχον· τὸ δ' εὐεπὲς οἱ συνεχεῖς τε καὶ οἱ συλλεαινόμενοι ποιοῦσιν ἦχοι.*[3]

[1] It seems impossible to extract any evidence from Aristophanes *Nub.* 870 ff.

[2] Gardner, *Indian Coins*, pp. 62, etc.

[3] "Furthermore, the juxtaposition of vowels which is found at the end of this clause in the words καὶ Ἀθηναίων has broken and made a gap in the continuity of the arrangement, by demanding quite an appreciable interval, since the sounds of ι and α are unmingled and there is an interruption of the voice between them; whereas euphony is caused by sounds which are continuous and smoothly blended."

The confusion between *αι* and *ε* begins in carelessly written papyri of the second century B.C.; for example, *ὁρᾶτε=ὁρᾶται*, *P. Eud.* 17. 11 (before 165 B.C.), *βαίνεται=βαίνετε*, *P. Weil* vi. 2. 8 (before 161 B.C.). In Attic inscriptions the confusion does not begin until the second century A.D. and it does not become frequent until about 150 A.D. At about the latter date, probably, the pronunciation of *αι* as *ε* became established in the speech of educated people. Sextus Empiricus, who wrote toward the end of the second century, tells us quite explicitly that *αι* was a simple sound of identical quality from beginning to end.

Sextus Empiricus *Adv. Gramm.* 116 ff. (p. 625. 20 ff. Bekk., p. 241 Fab.): Τὸ *γὰρ στοιχεῖον κριτέον μάλιστα ὅτι στοιχεῖόν ἐστιν ἐκ τοῦ ἀσύνθετον καὶ μονοποιὸν ἔχειν φθόγγον, οἷός ἐστιν ὁ τοῦ α καὶ ε καὶ ο καὶ τῶν λοιπῶν. ἐπεὶ οὖν ὁ τοῦ αι καὶ ει φθόγγος ἁπλοῦς ἐστι καὶ μονοειδής, ἔσται καὶ ταῦτα στοιχεῖα. τεκμήριον δὲ τῆς ἁπλότητος καὶ μονοειδείας τὸ λεχθησόμενον· ὁ μεν γὰρ σύνθετος φθόγγος οὐχ οἷος απ' ἀρχῆς προσπίπτει τῇ αἰσθήσει τοιοῦτος ἄχρι τέλους παραμένειν πέφυκεν, ἀλλὰ κατὰ παράτασιν ἑτεροιοῦται· ὁ δὲ ἁπλοῦς καὶ ὄντως τοῦ στοιχείου λόγον ἔχων τοὐναντίον ἀπ' ἀρχῆς μέχρι τέλους ἀμετάβολός ἐστιν· οἷον τοῦ μὲν ρα φθόγγου ἐν παρατάσει προφερομένου δῆλον ὡς οὐχ ὡσαύτως αὐτοῦ κατὰ τὴν πρώτην πρόσπτωσιν ἀντιλήψεται ἡ αἴσθησις καὶ κατὰ τὴν τελευταίαν, ἀλλὰ καταρχὰς μὲν ὑπὸ τῆς τοῦ ρ ἐκφωνήσεως κινηθήσεται, μεταῦθις δὲ ἐξαφανισθείσης αὐτῆς, εἰλικρινοῦς τῆς τοῦ α δυνάμεως ποιήσεται τὴν ἀντίληψιν. ὅθεν οὐκ ἂν εἴη σποιχεῖον τὸ ρα καὶ πᾶν τὸ ἐοικὸς αὐτῷ. εἰ δὲ τὸν τοῦ αι φθόγγον λέγοιεν, οὐδὲν ἔσται τοιοῦτον, ἀλλ' οἷον ἀπ' ἀρχῆς ἐξακούεται τῆς φωνῆς ἰδίωμα, τοιοῦτον καὶ ἐπὶ τέλει.*[1]

[1] "A primary speech-sound must be judged to be such chiefly from its having an uncompounded sound of a single nature, such as the sound of *α*, *ε*, *ο*, etc. Since then the sound of *αι* and of *ει* is simple and uniform, these also must be elementary speech-sounds. A proof of their sim-

Gothic and Armenian show in different ways the complete equivalence of *αι* and *ε*. The Gothic orthography, which is based upon the Greek of the fourth century A.D., consistently employs *ai* for *ĕ* both in loan-words and in native material (*aípiskopus, spaíkulatur, taíhun*). Greek loan-words in Armenian have *e* for *αι* as well as for *ε* and *η*, as in *sp'era* = *σφαῖρα*, *hiuperet* = *ὑπηρέτης*.[1]

OI

The diphthongal spelling, in the case of *οι* as elsewhere, must originally have represented the pronunciation. Etymological considerations show that Greek must once have had diphthongal *oi* in many places where *οι* actually appears in our records. Words in the related languages give evidence of an original diphthong in such cases as *οἶδε*: Sanskrit *veda*, Gothic *wait*, and *ποινή*: Lithuanian *kainė*, Avestan *kaēnā*. The Homeric genitive ending *-οιο* came from *-osi̯o* (Sanskrit *-asya*), and the second member of the compound

plicity and uniformity is the following: it is characteristic of a composite sound not to continue to its end to be such as when it first strikes the ear, but during its continuance it is altered; while, on the contrary, a simple sound which really has the value of a primary speech-sound is unchanged from beginning to end; for example, if the sound *ρα* is continuously pronounced, it is clear that the perception of it will not be apprehended in the same way at the end of the pronunciation as at the beginning, but at first perception will be produced by the utterance of *ρ*, and afterwards, when this has disappeared, will cause the apprehension of the force of *α* unmixed with other elements. Wherefore *ρα* cannot be an elementary speech-sound, nor can any sound like it. But if they should speak the sound of *αι*, there will be no such experience; but the same peculiarity of voice that is heard in the beginning will be heard also at the end."

[1] Thumb, *Byz. Z.*, IX, 402.

ἑκατόμβοιος from *-βοϝ-ιος*, while *οἶς* was contracted from Homeric *ὄϊς*. When the nominative plural ending *-οι* of the second declension induced *-αι* in the first, and when *οι* in the thematic optative induced *αι* in the first aorist optative, both must have been diphthongs (p. 140).

The retention of diphthongal *οι* in Attic shortly before the beginning of our records is indicated by the contraction of *ο*+*ει* and *ο*+*ῃ* to *οι* (*δηλοῖ* indicative and subjunctive), the "crasis" of *ο*+*ι* (*θοἰμάτιον*), and of *οι*+*ε* (*μοἰστί*), and the loss of *ι* before *α*, *ε*, and *η* (*στοάν*, Dittenberger, *Sylloge*[2] 3—Athenian inscription at Delphi, 460 B.C., *ποε̂ν*, *IG* i. 40. 54—424 B.C.).

When the character *ω* was introduced, a distinction was made between *οι* and *ωι*, (*ῳ*, p. 150). Since *ω* was a symbol of open *o* rather than of *ō* (p. 136), we must assume that in early Ionic and also in the Attic of the fifth century *οι* contained a close *o* and *ωι* an open *o*; the latter rather than the former was pronounced about as *oi* in English *oil*.[1]

That the modern pronunciation of *οι* as equivalent to *ι* was foreign to the Attic of the fifth century appears from Thucydides' account (ii. 54. 1–3) of a disagreement among the Athenians as to the correct form of an oracle which had been handed down from generation to generation:

[1] In Homer and several of the later dialects *ϝ* is preserved before *οι* but rarely before *ο* and *ω*. This has been thought to indicate that *o* in *οι* was an abnormal vowel similar to French *eu* and German *ö*. In that case there would certainly have been confusion of *οι* with *ει* and *υι*, which does not occur on early inscriptions; Attic *δυεῖν* for *δυοῖν* appears to stand quite alone. Probably the dissimilative influence of *ι* served to protect *ϝ* before *οι*.

Τοιούτῳ μὲν πάθει οἱ Ἀθηναῖοι περιπεσόντες ἐπιέζοντο, ἀνθρώπων τ' ἔνδον θνῃσκόντων καὶ γῆς ἔξω δῃουμένης. ἐν δὲ τῷ κακῷ οἷα εἰκὸς ἀνεμνήσθησαν καὶ τοῦδε τοῦ ἔπους, φάσκοντες οἱ πρεσβύτεροι πάλαι ᾄδεσθαι 'ἥξει Δωριακὸς πόλεμος καὶ λοιμὸς ἅμ' αὐτῷ.' ἐγένετο μὲν οὖν ἔρις τοῖς ἀνθρώποις μὴ λοιμὸν ὠνομάσθαι ἐν τῷ ἔπει ὑπὸ τῶν παλαιῶν, ἀλλὰ λιμόν, ἐνίκησε δὲ ἐπὶ τοῦ παρόντος εἰκότως λοιμὸν εἰρῆσθαι· οἱ γὰρ ἄνθρωποι πρὸς ἃ ἔπασχον τὴν μνήμην ἐποιοῦντο. ἢν δέ γε οἶμαί ποτε ἄλλος πόλεμος καταλάβῃ Δωρικὸς τοῦδε ὕστερος καὶ ξυμβῇ γενέσθαι λιμόν, κατὰ τὸ εἰκὸς οὕτως ᾄσονται.[1]

If the two words had been pronounced alike, there could have been no disagreement as to what had been "said" (ὠνομάσθαι, εἰρῆσθαι), and there could have been no variation between the present and the possible future recitation (οὕτως ᾄσονται).

About 250 B.C. the Boeotian inscriptions begin to show *υ* in place of *οι*; for example, Βοιωτῦς, *IG* vii. 3083. 4 (third century). By the end of the century this was the regular orthography except before a vowel. There is no doubt that the sound indicated was a monophthong, and the value of Attic *υ* suggests that the monophthong was an abnormal vowel between *u* and *i*. It may, however, have been an abnormal vowel intermediate between *o* and *e*. In either case Attic

[1] "Through experiencing such a calamity the Athenians were in great distress; the people died within the city, and the country was ravaged without. In their misery, as one might expect, they remembered this oracle, which the old men said had long been current: 'There shall come a Dorian war and a pestilence with it.' Now some had contended that not a pestilence (λοιμός) had been named in the oracle by their elders, but a famine (λιμός), but in the actual circumstances the contention that λοιμός was the correct word won the day; for people shaped their memory according to their experience. But, I dare say, if ever there comes another Dorian war hereafter and there happens to be a famine at the same time, probably they will recite the oracle in that way."

οι of that date must have differed from υ; for otherwise the Boeotians would not have changed from one spelling to the other.

Greek words in Latin show a diphthong for οι both in early times and in the Ciceronian period (*poena* = ποινή, Plautus, etc., *homoeomeria*, Lucretius i. 830). After Cicero the system of transliteration was so firmly fixed that later loan-words in the standard language throw little light upon current Greek pronunciation.

In the second century B.C. a confusion between οι and υ appears in carelessly written Egyptian papyri (ἀνύγετε, *P. Par.* 50. 7—160 B.C.); it indicates a monophthongal pronunciation of οι similar to that already noted in Boeotian of the third century. A similar confusion began in Attic inscriptions of the third century A.D.; for example, Ποιανεψιῶνα, *IG* iii. 1197. ii. 17 (between 238 and 244 A.D.); κυμητήριον, κυμιτίριον (many Christian epitaphs). The further change of υ to ι did not take place, as we have seen (p. 135), before the middle of the tenth century.

AY and EY

Greek αυ and ευ in inherited words often correspond to *u*-diphthongs of the related languages; for example, σταυρός: Latin *restauro*, Old Icelandic *staurr;* πεύθομαι: Sanskrit *bodhati*, Gothic *anabiuda*. In those dialects which in historic times had only a normal *u* in other positions (p. 132), the second member of the diphthongs αυ and ευ was undoubtedly a normal *u*. There is conclusive evidence that υ as the second member of diphthongs was a normal vowel in East Ionic. In that dialect ε+ο contracted to ευ (σεῦ: Homeric σέο).

In the early Ionic poets a diphthong often has to be read where originally dissyllabic *εο* occurs, and our texts usually present *ευ* in such passages; but in the inscriptions the spelling *ευ* for original *εο* first appears in the fourth century B.C. From that time on *εο* and *αο* were often written for original *ευ* and *αυ* (*εὀεργέτην, ταῶτα*, *SGDI* 5687—Erythrae, about 357 B.C.). Possibly this orthography indicates that the second member of the diphthong had approached the openness of *ο*, as is the case in German *Haus*, etc.; at any rate *ευ* from *ε+ο* must have had a normal vowel, and *ο* when written for *υ* must have represented a normal vowel.

The normal character of *υ* in various dialects is shown by such spellings as *ἀϝυτô*, *SGDI* 5421 = *IG* xii. v, p. xxv (Naxos, seventh or sixth century B.C.), *ταϝῦρος*, *SGDI* 4963 (Crete), *ἀϝυτάρ*, *IG* i. Suppl. iii. 477 p (Athens, sixth century B.C.), *ἀμεϝύσασθαι*, *SGDI* 4964 (Crete), *ἀϝτός, ἀϝτόν*, 4976, 4955, 4962 (Crete), *Ναϝπακτίōν*, *IG* ix. i. 334. 40 (Locris, fifth century B.C.), *'Εϝθείας*, *IG* iv. 309 (Corinth), *Λαοδικεοὺς*, *Inschriften von Olympia* 237 (137 A.D.), *Γονεοῦσι*, *Papers of the American School*, I, 33 (Assos, late Roman times). The occasional use in Cretan of *υ* for *λ* preceded by *α* or *ε* and followed by a consonant must mean that *λ* before a consonant was velar *l* and that *υ* after *α* and *ε* was normal *u;* for there is no other possibility of similarity between *λ* and *υ*. Examples are *καυχῷ = χαλκῷ*, *SGDI* 5011, and *ἀδευπιαί = ἀδελφαί*, 4991. v. 18 (p. 166).

That Attic *αυ* and *ευ* contained normal *u* is proved by the fact that the Boeotians continued to write *αυ* and *ευ* after the introduction of the Ionic-Attic alphabet (*αὐτεῖ, Εὔβωλος*, *IG* vii. 3080). We have seen (p. 137)

that they employed *ου* in place of *υ* to represent their normal *u* in other positions; their failure to do the same after *α* and *ε* shows that in this case Attic agreed with Boeotian.

While the Romans borrowed Greek *υ* (*y*) to represent the abnormal monophthong in loan-words (p. 37), they were always content to substitute *au* and *eu* for *αυ* and *ευ*. We have found no reason to doubt that Latin *u* in these diphthongs had its usual value of a normal vowel (pp. 56–59, 61–63). The Hindoos wrote Greek *ταῦρος* as *tāvuras* and Εὐκρατίδου as *Evukrātidasa*.[1] Gothic *aíwaggēljō* (*εὐαγγέλια*), *aíwlaúgia* (*εὐλογία*), etc., are equally good evidence.

In modern Greek the second member of the digraphs *αυ* and *ευ* is a spirant, and it is therefore often written *β* or *φ*, as ἔβδι (εὕδει), ἀφτὸς, ἔφκολος, ἐβεργεσία. This is one more indication that *υ* as the second member of diphthongs was normal *u*, for only a normal *u* is apt to develop into a labial spirant.

It is impossible exactly to date the change from semivowel to spirant. That the spirant pronunciation cannot belong to classical Greek appears from the Ionic spelling with *αο* and *εο* and the late Hellenistic spelling with *εου*, from the scansion of *αυ* and *ευ* before vowels as long syllables, although a single consonant would not make position, and from the spelling of the loan-words in Latin and Sanskrit.

A certain Egyptian Greek of the second century B.C. has left us the forms ῥαύδους = ῥάβδους, *P. Par.* 40. 33, 41. 26, and ἐμβλεύσαντες = ἐμβλέψαντες, *P. Lond.* i. 38. 15;

[1] Brugmann-Thumb, p. 60; Bendall, *J. of Ph.*, XXIX, 200; Gardner, *Indian Coins*, pp. 16, 165, etc.

but we know of no parallel mistakes in spelling for several centuries. The Septuagint varies between Δαυίδ and Δαβίδ, but both υ and β are mere approximations to a foreign sound which was similar to English *w*. In the same way Latin *v* was variously represented, as in Ὀαλέριος, Φλαούιος, Φλαύιος, Φλάβιος. In an Attic inscription of 120 A.D. (*IG* iii. 1104) we find the word εὐφήβοισι, but it is impossible to decide whether this was intended for ἐφήβοισι or εὐεφήβοισι.[1] Only in very late inscriptions do we find such forms as κατεσκέβασε and ἀπελέφτερος, which clearly indicate a spirant pronunciation of the second member of the ancient diphthongs. The loan-words in Gothic show that the diphthongal pronunciation was current in the North as late as the fourth century A.D.

In classical times αυ was pronounced much as *ow* in English *how*. The pronunciation of ευ was not like anything in English, French, or German; the initial syllables of English *Europe*, German *Europa*, and French *Europe* are equally remote from the Greek diphthong, which consisted of a close *e* followed in the same syllable by a normal *u* (French *é-ou* spoken rapidly; English *eh-oo* spoken rapidly would be less exact).

ΥΙ

The diphthong υι was inherited only in certain cases of the word υἱύς (e.g., genitive υἱός from **suiu̯os*). Elsewhere υι is due to the contraction of υ+ι or υ+i̯ (ἰδυίης from *ἰδύσi̯ᾱς : Sanskrit *vidúṣyās*), or to analogy.

[1] A few other mistakes, no more significant than these, are discussed by Hatzidakis, Ἀναγνώσματα, I, 422.

Its value must originally have been about the same as that of Latin *ui* (pp. 63 ff.), but υ in this diphthong seems to have shared the change to an abnormal vowel. In Attic the ι was then assimilated to the preceding vowel, and contracted with it to form ῡ before the close of the fifth century B.C. Consequently the diphthong does not appear in Attic inscriptions of the fourth century; instead we find ὑύς, Ἰλείθυα, ὀργυᾶς, etc.

In Hellenistic times the diphthong was reintroduced into the κοινή from other dialects, chiefly Ionic. Consequently the grammarians record the Attic forms as different from their own.

Choeroboscos, p. 212, 8 ff. Hilgard: ὅτι ἐν διφθόγγῳ ἐστὶ τὸ ⟨υι ἐν τῷ⟩ τετυφυῖα καὶ γεγραφυῖα δηλοῦσιν οἱ Ἀθηναῖοι τετυφῦα ⟨καὶ γεγραφῦα⟩ λέγοντες· οἱ γὰρ Ἀθηναῖοι τὸ ι τὸ ἐν διφθόγγῳ ἀποβάλλειν πεφύκασιν, οἷον κλαίω κλάω, ποιῶ ποῶ.[1]

In Hellenistic Greek, as in Ionic and early Attic, the first vowel of the diphthong was abnormal, and consequently the Romans represented it by *yi*, as in *Ilithyia*.

In modern Greek υι is pronounced in the same way as ι. Probably the change of υ to ι, some time after the tenth century (p. 135), involved the diphthong.

ĀI, HI, and ΩI

The Greek long diphthongs often represent long diphthongs of the parent language, as in λύκῳ: Avestan *yasnāi*, Sanskrit *devāy-a*, Latin *servō*. In other cases they result from contraction, as κλῄζω from κληΐζω. In ancient times the ι, when written at all, was always

[1] "By saying τετυφῦα and γεγραφῦα the Athenians show that υι in τετυφυῖα and γεγραφυῖα is a diphthong; for it is characteristic of the Athenians to drop ι in a diphthong, for example, κλαίω κλάω, ποιῶ ποῶ."

written on the line, and it will be convenient to do so in this section. In these diphthongs, as in the others, the spelling originally represented the pronunciation; in Homer we find Θρήϊκες and πατρώϊος as well as Θρῇικες and πατρῷιον.

Attic inscriptions of the early fourth century B.C. show ει instead of ηι, as in κλεὶς, *IG* ii. 675. 47 (after 403 B.C.; κλῄις occurs in line 44), 678 B 54 (between 378 and 366 B.C.). This orthography became the prevailing one in the third and second centuries, and in words which, like κλεὶς, were not subject to any analogical influence, ει was the only spelling employed in Hellenistic and later times. Since ει in the fourth century denoted a close ē (pp. 124 ff.), that is the value which we must give it where it takes the place of ηι. That ηι had at any rate become a monophthong is shown by the use of ε in the datives χαλκοθήκε̄ and αὐτε̂, *IG* ii. 61. 36 (357 B.C.) and in βασιλε̄ς and Βρισεές for βασιληὶς and Βρισηὶς on Attic vases (Kretschmer, *Vaseninschriften*, p. 140). Ει from ηι became an *i*-sound by 100 B.C., as did ει of other origin, and consequently we find such mistakes in spelling as Βρισὶς, *IG* ii. 3560, Ἡρακλίδου, ii. 2011. 2.

In certain forms, however, analogy restored the η. In the dative singular of the first declension the process may be thus represented:

χώρα χώρας χώραν : χώρᾱι = τιμή τιμῆς τιμήν : τιμῆι.

Since ᾱι was still a genuine diphthong, the analogy demanded a genuine diphthong in τιμῆι, and we find the restored form written consistently with ηι.[1] In the

[1] Mayser, p. 122.

second and third persons singular of the subjunctive the analogical proportion stands:

λύομεν λύετε : λύεις λύει = λύωμεν λύητε : λύης λύη.

Since the inducing forms, λύεις and λύει, contained, not diphthongs, but simple vowels of the quality which appeared elsewhere in the paradigm (pp. 124 ff.), the restored subjunctive forms contained, not ηι, but a monophthong of the same quality as that of the second person plural. Consequently we find very frequently such subjunctives as δοθῇ, *P. Petr.* ii. 2. 1. 10 (260 B.C.). The frequent spelling with ηι in the subjunctive forms of late inscriptions and papyri is due in part to the influence of old documents with ηι in these forms but chiefly to the fact that the corresponding indicative forms were written with the digraph ει.

The diphthongs ᾱι and ωι, and also the restored ηι, lost their second element at various times in different parts of the Greek world. In Attica the loss occurred not far from 200 B.C.[1] The change is reflected in the form of Greek loan-words in Latin; *Thraex*, *tragoedus*, etc., were borrowed in early times, while *Thrax*, *Thracia*, *odeum* are later forms. We have the explicit testimony of Strabo that ι was silent in the dative singular (of the first and second declensions, of course):

xiv. p. 648: πολλοὶ γὰρ χωρὶς τοῦ ι γράφουσι τὰς δοτικάς, καὶ ἐκβάλλουσι δὲ τὸ ἔθος φυσικὴν αἰτίαν οὐκ ἔχον.[2]

In the fifth century ηι, ᾱι, and ωι were all true diphthongs, and ᾱι and ωι remained such in the fourth

[1] Meisterhans-Schwyzer, p. 67.

[2] "For many write the datives without the ι, and reject the custom (of writing them) which has no basis in nature."

century. The first member of each was probably long and of the same quality as when monophthongal. Hence ωι, rather than οι, was similar to English *oi* in *oil*.

ĀY, HY, and ΩY

In long diphthongs, as in short, υ as final member was no doubt a normal *u*. There was a tendency in historic as in prehistoric Greek for long diphthongs to shorten the former element (ηὑρέθην became εὑρέθην). Shortly before the Christian Era ᾱυ in Hellenistic Greek, which had resulted from the contraction of ο+αυ (τᾱὐτό from τὰ αὐτό, ἑᾱυτῷ from ἑο[ῖ] αὐτῷ), lost its second member, as in ἑατῷ, *IG* ii. Add. 489 *b* 15 (between 39 and 32 B.C.). There is no evidence that the long diphthongs in υ ever changed their pronunciation in ways that were not reflected in the spelling.

F[1]

Attic and Ionic Greek had no consonantal *u* or *i*; but most of the other dialects had a consonantal *u* which was written F. In inherited words it corresponds with a semivowel in other languages; for example, ϝέργον: English *work*, οἶδα: Sanskrit *veda*, Latin *vidi*, English *wot*. The ϝ seems not to be preserved anywhere in written form in οἶδα; but in Homer it prevents elision of a preceding short final vowel, as in *Od*. ii. 211:

ἤδη γάρ τὰ ἴσασι θεοὶ καὶ πάντες Ἀχαιοί.

The retention of the semivocalic value of the character ϝ is certain wherever the character is used to denote the consonantal glide between υ and a dissimilar vowel

[1] Meillet, *MSL*, XIII, 33 ff.

(Corcyraean *ἀϝυτάν*, *IG* ix. i. 868), or is employed in writing the diphthongs *αυ* and *ευ* (p. 147), or alternates with a vowel character in writing, as in the name of the Cretan town Ἄξος, Ὄαξος, or Ϝάξος, Cretan *ὑέργων*, *SGDI* 5072, Ὀράτριον = Ϝράτριον 5041. 13, 19, Arcadian *ὀλοαῖς* = *ὀλϝαῖς*, *IG* v. ii. 514. 15, Cyprian *ὑέσις· στολή, πάφιοι* Hesychius.

Digamma was borrowed by the Italians in the value of a semivowel. Oscan ꟼ, which is transcribed **v**, is used where Latin has consonantal *u* (**víú** = *via*) and also to denote a glide between **u** and a dissimilar vowel, as in **eítiuvam**, which appears elsewhere in Latin characters as *eituam*. When Oscan was written in Greek letters, ϝ was used in similar circumstances, as in *ϝερσορει*.

In late inscriptions of several dialects and in numerous glosses *β* is written for ϝ, and this is sometimes said to prove that ϝ became a spirant. It is likely, however, that the use of *β*, like the use of *γ* and *ρ* for ϝ in glosses, was a makeshift of writers who were employing the Ionic-Attic alphabet; by a similar makeshift early English printers substituted *y* for *þ* in such words as *ye* = *þe* = *the*, just because it resembled the desired character more nearly than any other in fonts of type imported from the Continent.

The tradition of the end of the last century B.C. gave ϝ the value of a semivowel, as appears from the following:

Dionysius Halicarnaseus *Ant. Rom.* i. 20: Καὶ διδόασιν αὐτοῖς χωρία τῆς ἑαυτῶν ἀποδασάμενοι τὰ περὶ τὴν ἱερὰν λίμνην, ἐν οἷς ἦν τὰ πολλὰ ἑλώδη, ἃ νῦν κατὰ τὸν ἀρχαῖον τῆς διαλέκτου τρόπον Οὐέλια ὀνομάζεται. σύνηθες γὰρ ἦν τοῖς ἀρχαίοις Ἕλλησιν ὡς τὰ πολλὰ προτιθέναι τῶν ὀνομάτων, ὁπόσων αἱ ἀρχαὶ ἀπὸ φωνηέντων ἐγίνοντο, τὴν ου συλλαβὴν ἑνὶ στοιχείῳ γραφομένην. τοῦτο δ' ἦν ὥσπερ γάμμα διτταῖς ἐπὶ μίαν ὀρθὴν

ἐπιζευγνύμενον ταῖς πλαγίαις, ὡς Ϝελένη, καὶ ϝάναξ, καὶ ϝοῖκος, καὶ ϝανήρ, καὶ πολλὰ τοιαῦτα.[1]

Cassiodorus vii, p. 148. 5 ff. K. = Varro, p. 208. 19 ff. GS: Est quaedam littera in *F* litterae speciem figurata, quae digamma nominatur quia duos apices ex gamma littera habere videatur. Ad huius similitudinem soni nostri coniunctas vocales digammon appellare voluerunt, ut est *votum*, *virgo*. Itaque in prima syllaba digamma et vocalem oportuit poni, *ϝotum*, *ϝirgo;* quod et Aeolii fecerunt et antiqui nostri; sicut scriptura in quibusdam libellis declarat. Hanc litteram Terentius Varro dum vult demonstrare, ita perscribit, *vau*.[2]

The same tradition persisted in the first century A.D.; for Quintilian i. 4. 8 (quoted on p. 42) identifies consonantal *u* with digamma.

In words which originally contained the sound-group *sụ* we occasionally find *ϝh* written, as in Boeotiàn Ϝ*h*εκαδάμοε, *IG* vii. 593, with which should be compared Thessalian Ϝεκέδαμος, ix. ii. 662. Although our manuscripts of Homer never write this sound-group, it sometimes makes a preceding short final vowel count as a long syllable in the verse, as in *Il.* iii. 172:

αἰδοῖός τέ μοί ἐσσι, φίλε ἑκυρέ, δεινός τε.

[1] "And apportioning them a part of their own domain, they assigned them the district about the sacred pond, where most of the land was marshy (ἑλώδης), which now is named according to the ancient fashion of the language *Velia* (Οὐέλια). For it was the common practice of the ancient Hellenes to prefix to words beginning with a vowel the syllable *ου* written with one letter. This was like gamma with two cross strokes joined to one upright stroke, as Ϝελένη, ϝάναξ, ϝοῖκος, ϝανήρ, and many similar words."

[2] "There is a letter shaped like *F*, which is named digamma because it seems to have two outlines of gamma. According to the likeness of this sound our ancestors wanted to call digamma such groups of vowels as appear in *votum* and *virgo*. Therefore in the initial syllable digamma and a vowel should have been written; this the Aeolians and our ancestors did, as the spelling in certain books shows. In the attempt to represent this letter Terentius Varro wrote *vau*."

After the loss of ϝ from the group ϝ*h* the rough breathing remained, as in Attic ἕκαστος. It is not certain whether the group was pronounced as *hw* or as a double voiceless *w*. The Homeric scansion favors the latter alternative.

The Rough Breathing[1]

The rough breathing comes chiefly from Indo-European *s* or *i̯*, for example, ἑπτά: Sanskrit *sapta*, Latin *septem*, English *seven;* ἑκυρός: Sanskrit *çvaçuras*, Latin *socer;* ὅς: Sanskrit *yas;* ἧπαρ: Avestan *yakarə*, Latin *iecur*. Such a consonantal origin must have yielded at first a decided spirant, similar perhaps to German *ch* in *ach* or in *ich*. The sound was denoted in the earliest Greek alphabets by Ꭰ, a character which in Hebrew and Phoenician was named *cheth* and denoted a spirant (p. 121). In early Naxian inscriptions (*IG* xii. v, p. xxiv = *SGDI* 5419, 5423) ξ is represented by the combination □Ƨ, in which □ is probably a differentiation of Ꭰ, the character which in this inscription denotes *h*, η, and *h*ε. If so the orthography must have originated at a time when Ꭰ denoted a spirant (compare German *Ochs*, etc.).

In Lesbos, Asiatic Ionia, Crete, and Elis the sound denoted by Ꭰ, later H, was lost at an early date. The Ionic Milesians then made use of the character H for the long, open *e*. When the form of the alphabet thus originated spread to parts of the Greek world which still retained the sound originally denoted by H, the latter was commonly left undenoted; but occasionally, regularly in Heraclea and Tarentum, it was represented by the first half of the letter H (ⱶ). The same symbol

[1] Thumb, *Untersuchungen über den Spiritus Asper im Griechischen*, Strassburg, 1888.

was employed by scholars and schoolmasters with ever-increasing frequency (but written over the vowel instead of on the line), and it was finally rounded into the form which is now familiar.

Aristotle *El. Soph.* 177 *b* 3 ff.: . . . . εἴπερ μὴ καὶ τὸ ὅρος καὶ ὄρος τῇ προσῳδίᾳ λεχθὲν σημαίνει ἕτερον. ἀλλ' ἐν μὲν τοῖς γεγραμμένοις ταὐτὸν ὄνομα, ὅταν ἐκ τῶν αὐτῶν στοιχείων γεγραμμένον ᾖ καὶ ὡσαύτως (κἀκεῖ δ' ἤδη παράσημα ποιοῦνται), τὰ δὲ φθεγγόμενα οὐ ταὐτά.[1]

Supplementum Antiquum in Dion. Thracis Artem, p. 112, Uhlig: ἡ δὲ δασεῖα τίθεται εἰς γράμμα φωνῆεν δασυνόμενον, οἷον ἡμέρα, ὥρα, καὶ εἰς τὰ ὅμοια. ὁμοίως καὶ ἡ ψιλὴ τίθεται εἰς γράμμα φωνῆεν ψιλούμενον, οἷον ἔγραφον, ὄνομα, καὶ εἰς τὰ ὅμοια.[2]

Schol. Dion. Thrac., p. 142. 30 ff. Hilgard (on the above passage): τοῦτο δέ φησι μόνον, ὅτι τὸ σημεῖον τῆς δασείας, ἤτοι τὸ διχοτόμημα τοῦ Η τὸ ἐπὶ τὰ ἔξω ἀπεστραμμένον, τίθεται ἐπάνω φωνήεντος δασυνομένου, ἤγουν ἐκ τοῦ θώρακος μετὰ πολλῆς τῆς ὁρμῆς ἐκφερομένου· τὸ δὲ ἕτερον τοῦ αὐτοῦ στοιχείου διχοτόμημα, τὸ ἐπὶ τὰ ἔσω ἐστραμμένον, ἐπάνω φωνήεντος ψιλουμένου, ἤτοι ἐξ ἄκρων τῶν χειλέων προφερομένου. ἔστι γὰρ ἡ μὲν ψιλὴ ποιότης συλλαβῆς, καθ' ἣν ἄκροις τοῖς χείλεσι τὸ πνεῦμα ἐκφέρεται, οἷον Αἴας, ἡ δὲ δασεῖα ποιότης συλλαβῆς, καθ' ἣν ἀθρόον τὸ πνεῦμα ἐκφέρεται, οἷον ἥλιος.[3]

[1] " . . . . unless both ὅρος and ὄρος pronounced with the breathing have one of the two meanings. But in writing they are the same word, when written with the same letters and in the same way (but nowadays they put distinguishing marks beside them), while in pronunciation they are not the same."

[2] "The rough breathing is placed above a vowel spoken with aspiration, as ἡμέρα, ὥρα, and the like. Similarly the smooth breathing is placed over a vowel spoken without aspiration, as ἔγραφον, ὄνομα, and the like."

[3] "This means merely that the mark of the rough breathing, that is the half of H that is turned outwards, is placed above a vowel pronounced with aspiration, that is, expelled from the breast with much force; and that the other half of the same letter, the one that is turned

The scholiast's description of the sound of the breathings in the last sentence quoted seems to imply that both of them involved breath, although at that time there was no aspiration in either case. The description, however, is surely traditional, and we seem to have an early stage of the same tradition in the Pseudo-Aristotelian treatise Περὶ ἀκουστῶν 804 *b* 8 ff.:

> *δασεῖαι δ' εἰσὶ τῶν φωνῶν ὅσαις ἔσωθεν τὸ πνεῦμα εὐθέως συνεκβάλλομεν μετὰ τῶν φθόγγων, ψιλαὶ δ' εἰσὶ τοὐναντίον ὅσαι γίγνονται χωρὶς τῆς τοῦ πνεύματος ἐκβολῆς.*[1]

This passage shows quite clearly that in the early third century, to which the treatise probably belongs, the rough breathing was aspiration and the smooth breathing the lack of it.

There is abundant evidence that the rough breathing continued to be pronounced for some centuries in Attic and Hellenistic Greek. We have in numerous scholia and longer grammatical fragments the remains of an extensive literature dealing with the matter of aspiration.[2] The character of this literature and its origin is clearly stated in *Schol. Dion. Thrac.*, p. 154. 3 ff. Hilgard:

> *Τινὲς τῶν γραμματικῶν ἐξ ἐμπειρίας κανόνας ἐποιήσαντο κατὰ τὰς εὑρημένας παραδόσεις λέξιν ἑκάστην μεταχειρισάμενοι*

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inwards, is placed above a vowel pronounced without aspiration, that is, expelled from the tips of the lips. For the smooth breathing is a quality of a syllable, according to which the breath is expelled with the tips of the lips, as Αἴας; whereas the rough breathing is a quality of a syllable, according to which the breath is expelled all at once, as ἥλιος."

[1] "Those vowels are rough in which we expel the breath immediately with their sound; those, on the contrary, are smooth which are produced without the expulsion of the breath."

[2] Collected by A. Lentz, *Phil.*, Suppl. I, 641–787.

καὶ τὰ ἐν ταῖς λέξεσιν φωνήεντα ἀκριβωσάμενοι, πότε καὶ ὁπόσα δασύνονται καὶ ὁπόσα ψιλοῦνται. καὶ ἔστι τεχνολόγημα περὶ τούτων, πότε τὸ α πρὸ τοῦ β καὶ πρὸ τοῦ γ καὶ τῶν λοιπῶν στοιχείων δασύνεται ἢ ψιλοῦται. ὁμοίως καὶ τὸ ε καὶ τὰ λοιπὰ φωνήεντα πρὸ τῶν αὐτῶν στοιχείων πότε δασύνονται καὶ πότε ψιλοῦνται.[1]

Since there was commonly no indication of aspiration in writing before the Alexandrian period, aside from the use of aspirate mutes for smooth mutes before the rough breathing (ἀνθ' οὗ, etc.), the grammarians' tradition in regard to the breathings must rest in the main upon the observation of spoken Greek by the Alexandrian scholars. Consequently the prevailing correctness of the tradition is evidence that aspiration was still a feature of pronunciation in Alexandrian times.

The inscriptions are usually correct in the use of θ, φ, and χ for τ, π, and κ when these stand before a vowel with rough breathing (ἀνθ' οὗ, ἐφ' ᾧ, οὐχ οὗτος, etc.). Thumb, *op. cit.*, p. 77, prints a list of all the errors in this matter which he was able to find; only three of them fall before the Christian Era and probably three more belong to the first century A.D., while several of the later ones are in inscriptions executed in regions where the rough breathing was lost in the native dialects before the beginning of our records.

Greek words in various foreign languages regularly show *h* up to the third or fourth century A.D. Of the

[1] "Some of the grammarians have established standards of correctness based upon knowledge, having treated each word according to the traditions which they have found, and having accurately determined which vowels in the various words have rough breathing and when, and which have smooth breathing and when. There is also a system of rules about these matters; when α before β and before γ and so forth is rough or smooth, and when ε and the other vowels before the same letters are rough and when smooth."

countless examples in Latin we may cite *Hinnad*, *CIL* i. 530 (212 B.C.), *hierocteryx*, vi. 500 (377 A.D.). The Graeco-Indian coins of the last two centuries B.C. show such forms as *Heliyakreyasa* = Ἡλιοκλέους, *Hipastratasa* = Ἱπποστράτου, *Heramayasa* = Ἑρμαίου.[1] The inscriptions of Palmyra contain *hippikā* = ἱππικός; *hipatikā* = ὑπατικός (both third century A.D.); *plohedrūθa* = ἐπὶ προέδρου (137 A.D.).[2] Although Coptic transliterations of Greek words show the survival of the rough breathing in Egyptian Greek of the second century A.D. by such forms as *hina* = ἵνα, *hoste* = ὥστε, and *hoplon* = ὅπλον,[3] the Egyptian Greek papyri show many variations from Attic usage in the employment of the rough and smooth mutes before initial vowels; for example, κατ' ἕκαστον, *P. Rev. L.* 46. 16 (258 B.C.); κατ' ἡμῶν, *P. Berl.* 1004. ii. 18 (228 B.C.); ἅρα τ' ὁμαλήν, *P. Eud.* 16. 12. In most cases, however, the difference from Attic represents an analogical change; καθ' ἔτος is due to καθ' ἡμέραν, καθ' ὥραν, etc., and ἀπέστηκα is due to ἀπέστησα, ἀπέστην, etc.[4]

In Gothic we have *Haíbraíus*, *Herodes*, etc., but also *Aírmogaínes*, *Oseas*, *osanna*, etc., and even the incorrect use of *h* in *Helias* = Ἠλίας, *Her* = Ἤρ, *Haíleisaius* = Ἐλισσαῖος. Clearly the rough breathing was little more than a schoolroom tradition in northern Greek of the fourth century A.D. A closely similar state of affairs in the Armenian and Rabbinical texts indicates that by the fifth century A.D. the rough breathing was in the East no longer pronounced although still taught in the

[1] Gardner, *Indian Coins*, pp. 23, 59, 62, etc.

[2] Thumb, *op. cit.*, p. 85. *Adrianos* (236 A.D.) is very likely due to the loss of *h* in Latin (p. 46).

[3] Blass, p. 92; Thumb, *op. cit.*, p. 85.

[4] Mayser, pp. 199 ff.

schools.[1] It is probable that the sound ceased to be heard at all shortly after this stage was reached.

Latin transcriptions of Greek words frequently show *h* in the interior of the word; for example, *Euhemerus*, *Polyhymnia*, *Synhistor*, *CIL* ix. 4644 (5 B.C.), *pentaheterici*, ii. 4136, *Euhodus*, v. 6711, etc. Such forms can scarcely have any other source than Greek pronunciation, since Hellenistic orthography presents nothing of the kind. In several of the old dialects similar spellings were occasionally employed in case the alphabet in use provided a symbol for *h;* for example, εὔhορκο(ν), *IG* i. 23. 6; ἐσhόδō, 524. 2; πάphεδροι, 34. 11; ἐνhē̄βōhαις, v. i. 213. 33; πενταhετηρίδα, xiv. 645. 105. In Homer the aspirate from original intervocalic *s* regularly prevented contraction (γένεα, ὀδύρεαι, βάλλεο, etc.). Since, however, medial *h* was written much less often than initial *h*, it was probably weaker than the latter.

Σ

Dionysius of Halicarnassus describes the articulation of σ.

> *Comp. Verb.*, p. 54. 3 ff. UR: τὸ δὲ σ (φωνεῖται) τῆς μὲν γλώττης προσαγομένης ἄνω πρὸς τὸν οὐρανὸν ὅλης, τοῦ δὲ πνεύματος διὰ μέσων αὐτῶν φερομένου καὶ περὶ τοὺς ὀδόντας λεπτὸν καὶ στενὸν ἐξωθοῦντος τὸ σύριγμα.[2]

The phrase τῆς . . . . ὅλης, especially the last word, seems to point to an alveolar *s*, while the phrase περὶ τοὺς ὀδόντας suggests a dental *s*. Modern Greek has

[1] Thumb, *op. cit.*, pp. 85 f.; *Byz. Z.*, IX, 415.

[2] "And σ is pronounced by the entire tongue being carried up to the palate and by the breath passing between tongue and palate, and emitting, round about the teeth, a light, thin hissing."

the latter sound, and so we may incline to that alternative.

Except before or after dissimilar consonants and final, σ tended from the earliest times to be weakened or lost. Original *s* initial before vowels and medial between vowels became *h* in prehistoric times, for example, ἑπτά: Sanskrit *sapta*, and γένεhος (later γένεος—p. 161): Sanskrit *janasas*, Latin *generis*. Early Greek σσ was simplified in many dialects (Homeric τελέσσαι, ὅσσος: Attic τελέσαι, ὅσος). Intervocalic σ of secondary origin became *h* in Laconian and, at least in part, in Argolic and Elean (ἐνίκαhε, ἐνhε͞βο͞hαις, *IG* v. i. 213). Before voiceless consonants, on the other hand, σ was often written double in various dialects; for example, Δίσσκος, *SGDI* 2190. 5; 'Ασσκλ⟨ηπίῳ⟩, *IG* ii. 1464. 1; Αἰσσχύλο͞, i. 398. 3; αἰσσχρός, xii. v. 40; Αἰσσχίνου, *Inschr. von Magnesien*, 111; Νέσστωρ, Kretschmer, *Vaseninschriften*, p. 174; 'Αρίσστα, *SGDI* 1920. 9; ἐπίσστευσε, 2188. 12; ἀσσφάλειαν, 2736. 10.[1] This writing must indicate a stronger sound than was heard in other positions. The use of χσ and φσ for ξ and ψ in the native Attic alphabet (ἔδοχσεν, *IG* i. Suppl. ii. 1 *a*; φσέφισμα, 27 *b* 48) and elsewhere proves an energetic articulation of the sibilant as well as of the mutes; for the sibilant must here have taken the place of the puff of breath which elsewhere accompanied the aspirates (pp. 172 ff.).

[1] For further examples, see G. Meyer, *Griech. Gramm.*[3], pp. 304 f. It is quite likely that the syllable division fell within the sibilant in this position; but that fact could not have obtruded itself upon the attention if the sibilant had been a short or weak sound. The position of the syllable division within a consonant group is in fact not easy for the untrained ear to detect.

In modern Greek σ is a voiceless sibilant, and etymological considerations indicate that it was usually a voiceless sound from the beginning. Hence Dionysius of Halicarnassus calls it *τὸ σύριγμα* and *ὁ συριγμός* (*Comp. Verb.*, p. 54. 6, 18 UR.). Nevertheless σ came to be voiced when it stood before voiced consonants, as in *Σμύρνα*, *πρεσβύτερος*; and from about 340 B.C. ζ was sometimes written instead of σ in this position (*Πελαζγικόν*, *IG* iv. 583—between 331 and 307 B.C.; *Ζμυρναῖος*, ii. 966 A 19. 1—after 191 B.C., etc.). Lucian, in his *Iudicium Vocalium* 9, makes Sigma refer to this as one of its grievances:

> ὅτι δὲ ἀνεξίκακόν εἰμι γράμμα, μαρτυρεῖτέ μοι καὶ αὐτοὶ μηδέποτε ἐγκαλέσαντι τῷ ζῆτα σμάραγδον ἀποσπάσαντι καὶ πᾶσαν ἀφελομένῳ Σμύρναν.[1]

Languages which possessed both voiced and voiceless sibilants represented Greek σ by *s* except in the position before voiced consonants, where they employed *z;* for example, Gothic *Aileisabaiþ* = Ἐλιδάβετ; *aipiskaúpus* = ἐπίσκοπος; *praizbytairai* = πρεβυτέριον; Armenian *śkiptōs* = σκηπτός; *zmelin* = σμιλίον; Hebrew *iŝk'rîti* = ἐσχαρίτης; *k'ozmin* = κόσμιον.[2]

The change of final ς to ρ in Elean and Laconian (*τοῖρ λοιπαῖρ*, *SGDI* 1172. 11) and of σ between vowels to ρ in Eretrian (*παιρίν*, *IG* xii. ix. 187. 6) proves that these dialects once had a voiced sibilant in these positions respectively. The question of voice in the various Greek consonants is treated below (pp. 170 ff.).

[1] "That I am a longsuffering letter, you yourselves are my witnesses, since I have never brought suit against Zeta for taking an emerald from me and robbing me of all Smyrna."

[2] Thumb, *Byz. Z.*, IX, 413 f.; Krauss, *Lehnwörter*, I, pp. 100, 106.

P[1]

Dionysius of Halicarnassus describes both the articulation and the euphonic character of *ρ*.

Comp. Verb., p. 54. 1 ff. UR: τὸ δὲ ρ φωνεῖται τῆς γλώττης ἄκρας ἀπορριπιζούσης τὸ πνεῦμα καὶ πρὸς τὸν οὐρανὸν ἐγγὺς τῶν ὀδόντων ἀνισταμένης.[2]

Ibid., p. 54. 10 ff.: δύναται δ' οὐχ ὁμοίως κινεῖν τὴν ἀκοὴν ἅπαντα· ἡδύνει μὲν γὰρ αὐτὴν τὸ λ καὶ ἔστι τῶν ἡμιφώνων γλυκύτατον, τραχύνει δὲ τὸ ρ καὶ ἔστι τῶν ὁμογενῶν γενναιότατον.[3]

This is clearly a trilled tip-tongue *r*.

The grammarians prescribe rough breathing for initial *ρ*, medial *ρρ*, and *ρ* after aspirates.

Herodian i. 546. 20 f.: Τὸ ρ ἀρχόμενον λέξεως δασύνεσθαι θέλει, ῥά, ῥανίς, ῥάξ, χωρὶς τοῦ Ῥᾶρος (ἔστι δὲ ὄνομα κύριον).[4]

Ibid., 547. 5 f.: Τὸ ρ, ἐὰν δισσὸν γένηται ἐν μέσῃ λέξει, τὸ μὲν πρῶτον ψιλοῦται, τὸ δὲ δεύτερον δασύνεται, οἷον συῤῥάπτω.[5]

Schol. Dion. Thrac. 143. 17. ff. Hilgard: τοῦτο δὲ ρ οὐ μόνον κατ' ἀρχὰς καὶ ψιλοῦται καὶ δασύνεται, ἀλλὰ καὶ κατὰ τὸ μέσον, οἷον τὸ ἔῤῥαπτον· τὸ μὲν πρῶτον ψιλοῦται, τὸ δὲ δεύτερον δασύνεται· ὡσαύτως καὶ τὰ ὅμοια. οἱ δὲ ἀρχαῖοι γραμματικοὶ τὸ μὲν μετὰ ψιλοῦ εὑρισκόμενον ρ ἐψίλουν, τὸ δὲ μετὰ δασέος ἐδάσυνον· οἷον τὸ Ἀτρεὺς καὶ κάπρος ἐψίλουν, τὸ δὲ χῥόνος ἀφῥὸς θῥόνος ἐδάσυνον.[6]

[1] Thumb, *IF*, VIII, 228.

[2] "And *ρ* is pronounced by the tip of the tongue sending forth the breath in puffs and rising to the palate near the teeth."

[3] "They cannot all affect the sense of hearing in the same way. λ falls pleasurably on it, and is the sweetest of the semivowels; while *ρ* has a rough quality, and is the noblest of its class."

[4] "At the beginning of a word *ρ* is usually rough (ῥά, ῥανίς, ῥάξ), except Ῥᾶρος, which is a proper name."

[5] "If *ρ* is doubled in the interior of a word, the first *ρ* is smooth and the second is rough, as συῤῥάπτω."

[6] "And this *ρ* not only when initial but also when medial is both smooth and rough, as ἔῤῥαπτον (the first *ρ* is smooth and the second

Greek inscriptions written in the earlier alphabets show a few traces of this pronunciation: for example, Corcyrean *ρhoϝαῖσι*, *IG* ix. i. 868; Boeotian *hραφσα⟨ϝοιδῷ⟩*, *Eph. Arch.*, 1896, p. 244; Naxian *φhράhσō*, *IG* xi. v, p. xxiv=*SGDI* 5423. The spelling of *τέθριππον* from **τετρ' ἱππο-* suggests that *θρ* was pronounced *τῥ*, which is virtually what the "early grammarians" are said to have taught. Standard Latin orthography inserts *h* after initial *r* and medial *rr* in Greek words, as in *rhetor*, *Tyrrheni*, and Latin inscriptions have many such forms as *Crhestos*, *CIL* iii. 1656, *Prhygia*, ix. 4600, and *Trhacem*, 1424.[1] In Armenian also we find *hr* instead of *rh* in *hretor*=*ῥήτωρ*, *hrog*=*ῥόγα*, and *Hrom*=Ῥώμη;[2] but, in view of forms like *retin*=*ῥητίνη*, it is likely that the *h* records a mere school tradition.

The variation in the position of the *h* indicates that the aspiration did not either precede or follow the *ρ*, but accompanied it throughout; *ρ* initial, after aspirates, or double was pronounced with aspiration instead of with voice; that is, it was whispered. Probably this pronunciation originated independently in *ρ* and *ρρ* from earlier *sr* (*ῥέω*: Sanskrit *sravati*, etc.), and in the groups *θρ*, *φρ*, and *χρ*. The spread of the articulation to every initial *ρ* and medial *ρρ* was analogical. Very probably *ρ* was a voiceless sound also when it followed a

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rough), and like words in the same way. The ancient grammarians used smooth breathing with *ρ* occurring after a smooth (mute), and rough breathing after a rough (mute); for example they used smooth breathing in Ἀτρεὺς and κάπρος, and rough breathing in χῥόνος, ἀφῥός, and θῥόνος."

[1] See other examples in Kretschmer, *Vaseninschriften*, pp. 160 f.

[2] Hübschmann, *Armenische Grammatik*, I, 362; but cf. Thumb, *Byz. Z.*, IX, 415.

smooth mute (ἄντρον, πρό, ἄκρος), but if so it probably involved less breath than when it followed a rough mute.

Λ

The description of λ in Dionysius of Halicarnassus *Comp. Verb.*, p. 53. 11 ff. UR, does not tell what part of the tongue or of the palate was concerned in its production.

> φωνεῖται δ' αὐτῶν ἕκαστον τοιόνδέ τινα τρόπον· τὸ μὲν λ τῆς γλώττης πρὸς τὸν οὐρανὸν ἱσταμένης καὶ τῆς ἀρτηρίας συνηχούσης.[1]

Probably the articulation usually corresponded to that of τ, δ, and θ.

There is evidence, however, that under certain circumstances in some dialects λ represented a velar *l*. Cretan λ before a consonant was occasionally written υ, as in ἀδευπιαί, *SGDI* 4991. 5. 18, αὐκάν· ἀλκήν. Κρῆτες, Hesychius. The usual spelling with λ (ἀδελπιῶν, 4991. 4. 22, etc.) forbids us to suppose that the sound had become *u* at the time of the early inscriptions; but velar λ differed from ordinary λ and approached the sound of υ, that is normal *u* (pp. 132, 147). Several modern Greek dialects have velar *l*, and others contain evidence for such a sound at some earlier time. Greek loanwords in Armenian show sometimes *l* and sometimes *ł*.[2] Outside of Crete, however, the limits of the pronunciation in ancient times cannot be defined.

[1] "They are severally pronounced somewhat as follows: λ by the tongue rising to the palate, and by the windpipe helping the sound."

[2] Thumb, *Byz. Z.*, IX, 404 ff.

Initial *sl* became *h*λ as *sr* became *h*ρ; and there are a few traces of this, such as Aeginetan λ*h*αβόν, *IG* iv. 177, Attic Λ*h*άβετος, Kretschmer, *Vaseninschriften*, p. 158. No doubt the sound was a whispered *l*, just as *h*ρ was a whispered *r* (p. 165). Since neither grammarians nor loan-words record the pronunciation, we must conclude that it never spread to initial λ of other origin; very likely it disappeared altogether in standard Greek before the Alexandrian period.

M and N

Dionysius Halicarnaseus *Comp. Verb.*, pp. 53. 13—54. 1 UR: Τὸ δὲ μ (φωνεῖται) τοῦ μὲν στόματος τοῖς χείλεσι πιεσθέντος, τοῦ δὲ πνεύματος διὰ τῶν ῥωθώνων μεριζομένου· τὸ δὲ ν τῆς γλώττης τὴν φορὰν τοῦ πνεύματος ἀποκλειούσης καὶ μεταφερούσης ἐπὶ τοὺς ῥώθωνας τὸν ἦχον.[1]

M therefore was a labial nasal, while ν involved closure of the oral passage, no doubt in the same place in which the dental mutes were formed (pp. 9 f.).

The partial or complete assimilation of a nasal to certain following consonants, which is regularly denoted by our traditional orthography in the interior of a word, occurred also at the end of a word, unless this stood at the end of a phrase. Thus the ancients pronounced τὴμ πόλιν, τὸγ κήρυκα, τὸλ λόγον, etc., as well as σύμμαχος, ἐγγράφω, and συλλαμβάνω. The inscriptions frequently indicate assimilation both in the interior and at the end of a word, and yet the etymological spelling is often retained in both positions.

[1] "M is pronounced by the mouth being closed tight by means of the lips, while the breath is divided and passes through the nostrils; ν by the tongue intercepting the current of the breath, and diverting the sound toward the nostrils."

Agma[1]

We have quoted (p. 89) Varro's notice of the velar nasal, which in Latin was written *n* and in Greek *γ*.

Early Greek inscriptions use *ν* instead of *γ*; for example, ἐνγύς, *IG* i. 465. 2 (*ca.* 600 B.C.); ix. i. 521 (Acarnania, fifth century B.C.); λανχάνειν, ἀνάνκας, etc., ix. i. 334 (Locris, first half fifth century B.C.), ἐπάνανκον, λανκάνεν, *SGDI* 4991. iv. 28, 39 (Gortyn, fifth century B.C.). The orthography of such words as Latin *ingens*, *uncia*, Etruscan *kenkui*, and Umbrian *krenkatrum* reflects the usage of the early Italian Greeks. Originally, no doubt, *γγ* denoted *gg*, and, in fact, it must have continued to have this value in such words and phrases as ἔγγονος = ἔκγονος (fifteen times in Attic inscriptions), and ἐγ Γαργηττίων, *IG* iii. 1636.[2]

The use of *γ* for the velar nasal appears in Attica early in the fifth century; for example, Εὐαγγέλō, Στρογγυλίōν, *IG* i. 406 (second quarter of fifth century B.C.). Such a revolution in orthography can scarcely occur without some external cause, such as a change of sound which gives a character a new value. Since *ν* was originally written before velar mutes, we are obliged to look elsewhere for a change of *γ* to a nasal. Probably the change occurred in the groups *γν* and *γμ*; these characters no doubt originally represented the pronunciation, but probably *γ* was at an early date partially assimilated to the following nasal, just as Latin *g* in *gn* became a velar nasal (pp. 89 f.). There are three additional reasons for believing that the change actually occurred:

[1] Westphal, *Methodische Grammatik der griechischen Sprache*, I, 1, 17; Brugmann, *Curtius' Studien*, IV, 103 f.; L. Havet, *MSL*, IV, 276.

[2] Meisterhans-Schwyzer, p. 107; G. Meyer, *Griech. Gramm.*[3], p. 361.

1. There was in primitive Greek a similar development of βν and βμ into μν and μμ (σεμνός:σέβομαι, τέτριμμαι:τρίβω). To be sure δν and δμ sometimes appear even in classical times, as in Ἄφιδναι, the name of an Attic deme; but most such forms in the literature may be due to Homeric influence (ἀδμήτης, Sophocles *O.C.* 1321; δμωαί, Aeschylus *Ag.* 908). The form μεσόμνη for μεσόδμη, *IG* ii. 1054. 48, etc., indicates that the regular Attic development of δμ was to νμ with metathesis under the influence of the relatively common group μν.[1] Probably the anomaly of such forms as *ἴμνεν from ἴδμεν, *τεθαύμαμναι from *τεθαύμαδμαι, favored the introduction of the analogical forms ἴσμεν, τεθαύμασμαι, etc.

2. A number of epigraphical spellings and the later development of certain forms suggest or require the velar nasal where the standard orthography shows γν or γμ. The clearest cases are Ἀγγνούσιος, *IG* ii. 1698. 3, and φθέγγματα, *CIG* 4740. 7, 4741. 9. Elsewhere we find either ν or μ written for γ, and, in later times, the loss of the first nasal; for example, γιννόμενον, *SGDI* 5010 (Gortyn) and then γίνομαι; Ἀριάννη from Ἀριάγνη, Kretschmer, *Vaseninschriften*, pp. 171 f.; ἐγ Ναυπάκτō and ἐ Ναυπάκτō, *IG* ix. i. 334. 15, 8, etc.; πούμμα· πυγμή. Λάκωνες Hesychius. Modern Greek has πρᾶμμα or πρᾶμα for πρᾶγμα, τάμα for τάγμα, etc.

3. The name *agma* which Varro quotes from Ion of Chios (? fifth century B.C.) is evidently γάμμα with the first syllable inverted. Since all the names of Greek letters contained the sound which they represented, we must suppose that the newly invented name contained nasal γ before μ.

[1] Meisterhans-Schwyzer, p. 85; G. Meyer, *Griech. Gramm.*³, p. 366.

Mutes[1]

The evidence for voice or lack of voice in the several Greek mutes is similar to that which has been given for the Latin mutes (pp. 91 f.).

In modern Greek β, δ, and γ are voiced sounds, while π, τ, κ, φ, θ, and χ are usually voiceless. That π, τ, and κ are voiced after nasals shows that the nasals must have been voiced in these combinations. Words borrowed by and from various foreign languages make available for our purpose the independent traditions of those languages. The connection with Latin is established by numerous words, such as Καπετώλιον, Βάσσος, Δομέτιος, Γάϊος, *catapulta*, *basis*, *Daedalus*, *Agamemnon*, *Philippus*, *thesaurus*, *charta*, and also by some variants from the standard orthography, such as *calx* from χάλιξ, *tus* from θύος, *Pilippus*, *CIL* i. 354, and *Filippus*, *CIL* iii. 124, etc., Ἄφφιος, Ἀπφαῖος, *passim*, Σολφίκιος, *IG* iii. 870, Δομέστιχος, iii. 1133. 76, 1230, 1257, etc. The exchanges between India and Greece in the last three centuries B.C. may be illustrated by Γάγγης = *Gangā*, Τάξιλα = *Takṣaçilā*, Γανδάριοι = *Gandhārās*, βραχμᾶνες = *brahmānas*, and the coin-legends *Evukrātidasa* = Εὐκρατίδου, *Arkhebiyasa* = Ἀρχεβίου, *Apaladatasa* = Ἀπολλοδότου, *Ṭheuphilasa* = Θεοφίλου.[2] Gothic has *Bēþlahaim*, *Filippus*, *Gaddarēnus*, *paíntēkustē*, *paska*, etc. The confusion between the Greek voiced and voiceless mutes in Coptic and, to a lesser degree, in Armenian and the Rabbinical texts, is due to peculiarities of those languages.[3]

[1] Dawes, *The Pronunciation of the Greek Aspirates*, London, 1895; Kretschmer, *Ath. Mitth.*, XXI, 411 ff.; Thumb, *IF*, VIII, 188 ff.; Sturtevant, *TAPA*, XLVIII, 49 ff.; Evans *CQ*, XII, 162 ff.

[2] Gardner, *Indian Coins*, pp. 16, 32, 34, 167, etc.

[3] Thumb, *Byz. Z.*, IX, 410.

The phonetic processes of the language mark off two groups of consonants. Thus, among the mutes, κ, π, τ, χ, φ, and θ frequently stand next one another, as in κόπτω, ζευκτός, ἐκπέμπω, φθάνω, χθών, Ἀτθίς, ἀπφύς, βάκχη, and γ, β, and δ may be combined, as in σμάραγδος and ῥάβδος, but members of one group are never combined with members of the other in the interior of a word, except for etymological reasons, as in compound verbs, such as ἐκδίδωμι. In Attic inscriptions even the preposition ἐκ frequently becomes ἐγ before β or γ, as in ἐγ βουλῆς, *IG* ii. Suppl. 834 *b* 68, etc., ἐγ Γαργηττίων, iii. 1636. The similarity of κ, π, and τ with χ, φ, and θ is indicated further by the fact that the latter sounds change to the former upon the loss of their aspiration (τίθημι, πέφευγα, κέχευμαι). The liquids, λ, μ, ν, ρ, are combined with mutes, sometimes of one group and sometimes of the other; but whenever they influence the character of a mute they produce β, δ, or γ; as in δέδειγμαι, ἄμβροτος, μέμβλωκα, ἄνδρα. The grammarians (cited pp. 187 f.) tell us that ξ and ψ contain κ and π respectively, while ζ contains δ; and accordingly we find δέδειξαι beside δέδεικται and λέλειψαι beside λέλειπται, but ἐλπίζω beside ἐλπίδα. When ζ became a monophthong it retained its affinity with β, δ, and γ, as we see from such spellings as Πελαζγικόν and Gothic *praizbytairei*. We thus have two groups of consonants which are rarely combined with each other, namely, β, γ, δ, ζ, and π, κ, τ, φ, χ, θ, ξ, ψ; λ, μ, ν, and ρ furthermore show affinity with the first group rather than with the second, while σ goes with the second except in words in which ζ is ultimately substituted for it. This state of affairs can scarcely be accounted for except on the hypothesis that the sounds of the first group were

voiced and those of the second voiceless, while the others were sometimes voiced and sometimes voiceless.

The earliest extant description of the mutes is by Dionysius Thrax, p. 12. 5 ff., Uhlig:

> *τούτων* (*i.e.* *ἀφώνων*) *ψιλὰ μέν ἐστι τρία, κ π τ, δασέα τρία, θ φ χ, μέσα δὲ τούτων τρία, β δ γ. μέσα δὲ εἴρηται ὅτι τῶν μὲν ψιλῶν ἐστι δασύτερα, τῶν δὲ δασέων ψιλότερα.*[1]

The more detailed description by Dionysius of Halicarnassus is in full agreement with this (*Comp. Verb.*, pp. 55, 11 ff. UR, cited on p. 185). It is clear that the sharpest contrast was that between *π* and *φ*, *τ* and *θ*, *κ* and *χ*. The second member of each of these pairs was distinguished from the other by the presence of breath, that is aspiration. Such a distinction between mutes may be of several degrees. If a large amount of breath is impounded behind the obstruction of the oral passage which is necessary to the formation of a mute, its release causes a puff after the explosion proper, as in English and German *p*, *t*, and *k*. If the amount of imprisoned breath is large and the pressure from the lungs is maintained after the explosion, the puff is more noticeable, as in Irish-English, Danish, and especially in the Hindoo aspirates.[2]

Since Greek mutes showed three degrees in the strength of the aspiration, it is probable that the aspirates

[1] "Of these mutes three are smooth, *κ*, *π*, and *τ*, three rough, *θ*, *φ*, and *χ*, and three intermediate between these, *β*, *δ*, *γ*. They are called intermediate (middle mutes) because they are rougher than the smooth mutes, but smoother than the rough mutes."

[2] See Sweet, *Primer of Phonetics*[3], pp. 58 ff.; compare Passy, *Petite Phonétique Comparée*, pp. 114 f.; otherwise Meillet, *MSL*, XIX, 163 ff.

had a very strong breath puff. Furthermore, only a very strong aspiration could have attracted the attention which the ancients paid to the second element of the rough mutes. In fact they were sometimes classified with the semivowels rather than with the mutes, as we learn, for example, from Sextus Empiricus *Adv. Gramm.* 102 (p. 621. 28 ff. Bekk., p. 238. 21 ff. Fab.):

> *Τῶν δὲ συμφώνων τὰ μὲν ἡμίφωνά ἐστι κατ' αὐτοὺς τὰ δὲ ἄφωνα, καὶ ἡμίφωνα μὲν ὅσα δι' αὐτῶν ῥοῖζον ἢ σιγμὸν ἤ τινα παραπλήσιον ἦχον κατὰ τὴν ἐκφώνησιν ἀποτελεῖν πεφυκότα, καθάπερ τὸ ζ, θ, λ, μ, ν, ξ, ρ, σ, φ, χ, ψ, ἤ, ὥς τινες, χωρὶς τοῦ θ καὶ φ καὶ χ τὰ λειπόμενα ὀκτώ. ἄφωνα δέ ἐστι τὰ μήτε συλλαβὰς καθ' ἑαυτὰ ποιεῖν δυνάμενα μήτε ἤχων ἰδιότητας, αὐτὸ δὲ μόνον μετὰ τῶν ἄλλων συνεκφωνούμενα, καθάπερ β, γ, δ, κ, π, τ, ἤ, ὡς ἔνιοι, καὶ τὸ θ, φ, χ. καὶ μὴν κοινῶς τῶν συμφώνων τὰ μὲν φύσει δασέα λέγουσι, τὰ δὲ ψιλά· καὶ δασέα μὲν θ, φ, χ, ψιλὰ δὲ κ, π, τ.*[1]

This passage seems at first glance to say that *θ*, *φ*, and *χ* were spirants; but since *ξ* and *ψ* are included in the same list, we may conclude instead that *θ*, *φ*, and *χ* were followed by so strong a puff of breath that they had some similarity to the double consonants.

That the aspirates were in fact closely related to the smooth mutes in early times is a necessary inference

[1] "Of the consonants some are in themselves semivocalic and others mute; the semivowels are those which in their pronunciation are by themselves able to produce a whizzing or hissing or some similar sound, as *ζ, θ, λ, μ, ν, ξ, ρ, σ, φ, χ, ψ*, or, as some writers say, the other eight without *θ, φ*, and *χ*. Mutes are those which cannot by themselves produce syllables or their peculiar sounds, but which are merely pronounced with the others, as *β, γ, δ, κ, π, τ*, or, as some writers say, also *θ, φ*, and *χ*. Of the consonants in general they say that some are by nature rough and others smooth; *θ, φ*, and *χ* are rough, and *κ, π*, and *τ* smooth."

from the use of τθ, πφ, and κχ for the aspirates when they are doubled (τίτθη, Σαπφώ, ἰακχή).[1] The occasional spelling of such words with two aspirates indicates that the similarity still persisted in historical times (Ἀράθθοιο, *IG* ix. i. 868, Σαφφώ, v. i. 1579, Σαφφοῦ(ς), ix. i. 656, Βάχχιος, ii. 1329, Ἰάχχῳ, ii. 1592. 2—third century B.C.). When Greek was written in alphabets which had no separate characters for the aspirates, these were commonly written in the same way as the smooth mutes; this was the case with the Cyprian syllabary, the early Cretan alphabet (except for θ), early loan-words in Latin (p. 70), Egyptian (p. 179), etc. Most of the Greek alphabets which lacked symbols for ψ and ξ expressed the sounds by φσ and χσ respectively. That φ was articulated in the same way as π and β, that is with the edges of the lips, is explicitly stated by Dionysius of Halicarnassus *Comp. Verb.*, p. 56. 1 ff. (quoted on p. 185); in modern Greek φ and β are labio-dentals.[2]

That the aspirates were followed by an audible puff of breath is shown by the following facts:

1. In case aspirates occurred in successive syllables in prehistoric Greek, one of the aspirates became smooth; hence the reduplication of an aspirate lacks aspiration; e.g., πέφευγα, τίθημι, κέχυμαι. Since the rough breathing before an initial vowel was lost in case an aspirate followed in the next syllable (e.g., ἔχω from *ἕχω—cf. ἕξω) it follows that the aspirates contained an element similar to the rough breathing.

2. The early alphabet of Thera lacked the letters φ and χ, and employed instead πh, κh, and ϙh, as in

[1] Brugmann-Thumb, pp. 123, 153.

[2] Cf. Hatzidakis, Ἀναγνώσματα, I, 436 ff.

Πhειδιπίδας, *IG* xii. iii. 536, Ἀρκhαγέτας, 762, Θhαρύμαφhος, 763.

3. When π, τ, or κ came to stand before a vowel with rough breathing, an aspirate was written; e.g., ἐφ᾽ ᾧ, ἀνθ᾽ οὗ, οὐχ οὗτος.

4. A feature of Attic Greek was the rather extensive assimilation of aspiration; for example, hέχει, *IG* i. Suppl. i. 373 *b* (early sixth century B.C.), hέχον, i. 170. 7 (422 B.C.), Ηισθμοῖ, i. 8. 12 (after 450 B.C.), ἰχθύς, Aulus Gellius ii. 3 (cited on p. 73), Ἀνθίλοχος, φαρθένος, Διοφείθης, Kretschmer, *Vaseninschriften*, pp. 149 f.[1] Similar forms occur occasionally in other parts of the Greek world, as φαρθένō, *IG* v. ii. 262. 28. 31 (Arcadia, fifth century B.C.), θυφλός, xiv. 865 (Cumae, sixth century B.C.), θὐκἀγαθᾶι, *SGDI* 4983, θύχαι, 5015. 2. 5018 *a* 1 (Gortyn). It is obvious that only a true aspirate could induce initial aspiration, as in the first four examples. The proof is scarcely less cogent in the remaining words, since it is unlikely that a spirant could induce a spirant of different articulation; a spirant θ could scarcely change a neighboring π to a spirant φ.

The metathesis of aspiration in Ionic κίθων, κύθρα, ἄχαντος, Cretan καυχός, Thessalian Πετθαλός = Φετταλός, is equally good evidence for the retention of the original aspirates in those dialects.

5. In Egyptian Greek of the Ptolemaic period the tendency to dissimilation of aspirates which had characterized primitive Greek was renewed. The following examples are taken from Mayser, pp. 172 ff.:

> κατασκεθέντα, *P. Petr.* ii. 45 (2) 4 (246 B.C.)
> κατασκεθῆναι, *ibid.* 12

[1] For further examples, see Kretschmer, *Ath. Mitth.*, XXI, 413 ff.

ῥαπάνια, *P. Leid. C*, p. 93, col. 4. 15 (164–160 B.C.)
ὑπερπέρωνντες, *P. Weil* 4. 3 (before 161 B.C.)
τέσθαι, *P. Tebt.* i. 5. 225 (118 B.C.)
?ἀποκεκαθίσται, *P. Par.* (160 B.C.)[1]
καθῆσται, *P. Leid. U.* 2. 8 (second century B.C.)
προ⟨h⟩ έσται, *P. Lond.* i, p. 11. 26 (162 B.C.)
τίθεσται, *P. Lond.* i, p. 40. 76 (158 B.C.)

Possibly we should include also forms with κθ and πθ for χθ and φθ (pp. 181 f.):

ἔκθρας, *P. Tebt.* i. 5. 259 (118 B.C.)
δαινεκθέντες, *P. Tebt.* i. 25. 17 (117 B.C.)
ὀπθαλμῷ, *P. Grenf.* i. 45. 5 (19 B.C.)[2]

6. Numerous foreign languages transliterated Greek θ, φ, and χ in such a way as to make their character clear. From the latter part of the second century B.C. they were regularly represented in Latin by *th*, *ph*, and *ch* (*Athenae*, *philosophia*, *charta*). Most significant is the failure of the Romans to represent φ by *f*, as they would certainly have done if the Greek sound had been a spirant. We have besides explicit testimony that the Greek and Latin sounds were unlike.

Quintilian i. 4. 14: Atque ipsa *s* littera ab his nominibus (i.e., *Valesii*, *arbos*, etc.) exclusa in quibusdam ipsa alteri successit, nam *mertare* atque *pultare* dicebant, quin *fordeum foedosque* pro aspiratione velut simili littera utentes; nam contra Graeci aspirare solent, ut pro Fundanio Cicero testem, qui primam eius litteram dicere non possit, irridet.[3]

[1] So Mayser, p. 179; but his reference is wrong.

[2] Rahlfs, *Sitzungsberichte d. berl. Akad.*, 1912, p. 1040, reports Coptic *Nepthalim*.

[3] "And the same letter *s*, although forced out of these words, has itself taken the place of another letter in certain words; for they used to say *mertare* and *pultare*. In fact they said *fordeum* and *foedi*, using

Quintilian xii. 10. 27–29: Atque in hac tamen opinione perseverantes Graecos magis tulerim. Latina mihi facundia, ut inventione, dispositione, consilio, ceteris huius generis artibus similis Graecae ac prorsus discipula eius videtur, ita circa rationem eloquendi vix habere imitationis locum. Namque est ipsis statim sonis durior, quando et iucundissimas ex Graecis litteras[1] non habemus, vocalem alteram, alteram consonantem, quibus nullae apud eos dulcius spirant; quas mutuari solemus, quotiens illorum nominibus utimur. Quod cum contingit, nescio quo modo hilarior protinus renidet oratio, ut in *Zephyris* et *zophoris*. Quae si nostris litteris scribantur, surdum quiddam et barbarum efficient, et velut in locum earum succedent tristes et horridae, quibus Graecia caret. Nam et illa quae est sexta nostrarum paene non humana voce vel omnino non voce potius inter discrimina dentium efflanda est; quae etiam cum vocalem proxima accipit quassa quodammodo, utique quotiens aliquam consonantem frangit, ut in hoc ipso *frangit*, multo fit horridior.[2]

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in place of aspiration what is in a way a similar letter; for, on the other hand, the Greeks usually substitute aspiration, as Cicero in defending Fundanius makes fun of a witness who cannot pronounce his initial letter."

[1] The *iucundissimae litterae* which Latin does not possess are *υ* and *ζ*, which were added at the end of the Latin alphabet as not being properly Latin letters at all (pp. 37, 115). *Ph* occurred in *triumphus*, which, in Quintilian's opinion, was a Latin word (i. v. 20, cited on p. 72), and so he cannot have meant to include *φ* here. The discussion of *f* begins in the last sentence, although foreshadowed in the one preceding. Otherwise Watson, *ad loc.*, Lloyd, *Academy*, XLIX, 243, and others.

[2] "The Latin eloquence, though it appears to me on a level with the Greek in invention, arrangement, judgment, and the other qualities of that kind, and seems to be indeed in all respects its pupil, yet in regard to elocution scarcely has the power even of imitation. For, first of all, it has more of harshness in the sound of its words; as we are quite destitute of the two most euphonious letters of the Greeks, one a vowel, the other a consonant, than which indeed none even of theirs sound more sweetly, and which we are in the habit of borrowing, whenever we adopt any of their words. When this is the case, our language, I know not how, immediately assumes a more pleasing tone, as for example in

Macrobius *Exc. Paris.* v, p. 606 ff. K.: *F* enim apud Latinos δασὺ non est, quia non habent consonantes δασείας, et *f* digammon est Αἰολέων, quod illi solent magis contra vim adspirationis adhibere; tantum abest ut pro φ habendum sit. Ipsum autem φ Latinitas adeo non recipit ut pro eo etiam in Graecis nominibus *p* et *h* utatur, ut *Philippus*, *Phaedon*.[1]

This evidence cannot be explained away by the assumption that Greek φ was a bilabial spirant and Latin *f* a labio-dental.[2] These two spirants are so similar that only a trained phonetician would care to distinguish them in writing. Neither are we helped by the supposition that Greek φ was an affricate; for Cicero's Greek witness could in that case have pronounced a Latin *f* with little difficulty. The use of φ to represent Latin *f* (for example, Φουνδάνιος) is not surprising; this was the nearest possible approach to the foreign sound.

Indian coins of the second and first centuries B.C. show *th*, *ph*, and *kh* for θ, φ, and χ; for example,

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using the words *Zephyri* and *zophori;* for if these words are written in our characters, they will give something of a dull and barbarous sound, as there will be substituted, in the place of agreeable letters, those harsh, repulsive letters with which Greece is utterly unacquainted. In fact, that one also which is the sixth of our letters, with a voice scarcely human or rather with no voice at all, requires to be blown out through the interstices of the teeth; a letter which, even when it takes a vowel next to it, has something of a harsh sound, and when it unites with any consonant, as in the word *frangit*, produces a sound still harsher."

[1] "Latin *f* is not rough, because the Latins do not have rough consonants, and *f* is digamma of the Aeolians, which they customarily employ in more decided contrast to the force of aspiration (i.e., digamma among the Aeolians is even less an aspirate than is *f* among the Latins ?); so far from true is it that *f* should be considered as representing φ. Besides, Latin is so far from admitting φ that it uses *p* and *h* instead even in Greek words, as *Philippus*, *Phaedon*."

[2] Latin *f* itself was probably bilabial in the second century B.C. (p. 91), when the use of *ph* for φ originated.

Akathukreyasa = Ἀγαθοκλέους, *Apulaphanasa* = Ἀπολλοφάνου, *Arkhebiyasa* = Ἀρχεβίου.[1] The Armenian aspirates, *t*ʿ, *p*ʿ, and *k*ʿ, regularly represent the Greek rough mutes, as *atʿlestaikʿ* = ἀθληταί, *pʿalang* = φάλαγξ, *kʿart* = χάρτης.

Early loan-words in Egyptian, as in Latin, make no distinction between Greek smooth and rough mutes; thus the earliest known record of any Greek word is *'Aḳajwaša* = *'Ἀχαιϝως (later Ἀχαιοί) on an inscription of 1275 B.C. In documents of the Hellenistic period we find *Muskian* = Μοσχίων, *Pilins* = Φιλῖνος, *Trupin* = Τρύφαινα. Other documents of the Hellenistic and Roman periods, however, show more exact transcriptions, such as *athluphurus* (210 B.C.) = ἀθλοφόρος, and *phile* (254 A.D.) = φιάλη. In the course of time Egyptian, in its later form, which is commonly called Coptic, came to be written with remarkable accuracy in an alphabet based upon the Greek and supplemented by characters from the Demotic. In this alphabet true aspirates were represented by the Greek characters θ, φ, and χ, while there were different symbols for the spirants *f* and *ḫ*. There is furthermore a long document of the second century A.D. in which a large number of Coptic words are transcribed in Greek characters; the Coptic aspirates *ph* and *ch* (also *gh*) are regularly represented by φ and χ, while the spirants *f* and *ḫ* are written with the native characters even here. Greek θ represents Coptic *th* except before ι and ει, where it usually represents *ts*.[2]

[1] Gardner, *Indian Coins*, pp. 11, 54, 32, etc.

[2] Hess, *IF*, VI, 130 ff. Thumb, *IF*, VIII, 189 ff., points out that in Egyptian Greek papyri the rough and smooth mutes are often confused. Many of the instances listed by Mayser, pp. 171 ff., are to be

In modern Greek the ancient aspirates are spirants, similar to English voiceless *th*, English *f*, and Scotch and German *ch*. It is commonly supposed that some at least of the aspirates became spirants in various ancient dialects. The evidence is clear that θ before front vowels became some kind of a spirant in Laconian. The sound is represented by σ in Alcman (σιῶν = θεῶν, 23. 36 Bergk[4]), in Laconian passages in Aristophanes (σιός = θεός, *Lys.* 81), and Thucydides (σύματος, v. 77), and in numerous glosses. Although the earlier inscriptions employ θ in this position, σ occurs in later times, first in σιῶ, ἀνέστηκε, *Annual of the British School in Athens*, X, 173, 188 (probably fourth century B.C.). The use of σ in Thucydides' σύματος is probably due to some grammarian's recension, since Laconian υ was not a front vowel (p. 132); and the same may be true of the forms in Alcman and Aristophanes. In modern Tsaconian *s* appears in such words, and that may have been the spirant which developed immediately from the aspirate. But if we ascribe σιός, etc., to Aristophanes, it is more likely that he was indicating a spirant similar to English *th* in *thin;* for the Laconians themselves in the fifth century continued to write θ. The supposed evidence for spirants in the other ancient dialects is inconclusive.[1]

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explained as due to dissimilation (p. 176), to an incipient phonetic change of aspirate to *lenis* after σ (τρισκιλίας, μνήστητι), or to the reaction against it (ἐπισχάζων, σφυρίδα, βέλτισθον). Many of the forms have parallels in Attic (δεκ- = δεχ-, σχελίς, σφυρίς). We have noted that the similar dislocation of the rough breathing in certain words in Egyptian Greek does not indicate psilosis (p. 160).

[1] Otherwise Schmidt, *KZ*, XXXII, 341 f.; Meillet, *MSL*, XIX, 166 f.; and others. In regard to Cretan, the evidence mentioned by Buck, p. 55, is outweighed by the forms θύχα and καυχός, which were discussed above (p. 175).

In Hellenistic Greek the earliest indication of the spirant pronunciation of the original aspirates is the use of *f* for *φ* in carelessly written Latin inscriptions of the first century A.D. from Pompeii; for example, *Dafne*, *CIL* iv. 680, *Fileto*, 2402, *fisica*, 1520, 6865 (cf. *Ruphus*, 4615). In Egyptian Greek of the second century A.D. *θ* before *ι* and *ει* represented Coptic *ts* (p. 179). In the fourth century A.D. Latin *f* was the regular transcription of *φ*; and in the same century Ulfilas represented *θ* and *φ* by Gothic *þ* and *f;* for example, *Þomas* = Θωμᾶς, *Filippus* = Φίλιππος.

The spirant pronunciation is clearly described by the Byzantine scholiast on Dionysius Thrax, p. 43. 14–21, Hilgard:

> Τοῖς μὲν ἄκροις χείλεσι πιλουμένοις ἐκφωνεῖται τὸ π, ὥστε σχεδὸν μηδ' ὅλως πνεῦμά τι παρεκβαίνειν· ἀνοιγομένων δὲ τῶν χειλέων πάνυ καὶ πνεύματος πολλοῦ ἐξιόντος ἐκφωνεῖται τὸ φ· τὸ δὲ β ἐκφωνούμενον ὁμοίως τοῖς ἄκροις τῶν χειλέων, τουτέστι περὶ τὸν αὐτὸν τόπον τοῖς προλεχθεῖσι τῶν φωνητικῶν ὀργάνων, οὔτε πάνυ ἀνοίγει τὰ χείλη, ὡς τὸ φ, οὔτε πάνυ πιλοῖ, ὡς τὸ π, ἀλλὰ μέσην τινὰ διέξοδον τῷ πνεύματι πεφεισμένως δίδωσιν.[1]

It is probable that *φ* and *χ* had about their usual value in the groups *φθ* and *χθ* (*φθάνω*, *χθών*, etc.). The orthography itself forbids us to suppose that the pronunciation was *πθ* and *κθ*; for such groups would

[1] "Π is pronounced with the edges of the lips tightly compressed so that scarcely any breath escapes. Φ is pronounced with the lips wide open and much breath escaping. B, which is likewise pronounced with the edges of the lips, that is, with the same part of the vocal organs as the sounds just mentioned, does not either open the lips wide, as does *φ*, or close them tight, as does *π*, but sparingly provides a moderate passage for the breath."

certainly have been written phonetically in the same way as the common groups τθ, πφ, and κχ. Besides, a conventional use of φθ and χθ to represent the pronunciation πθ and κθ would have been betrayed by misspellings; whereas the substitution of lenes for aspirates is quite as rare before θ as in other positions (p. 179, footnote). Armenian, which has similar groups of consonants in native words (e.g., *tʿkʿanem*), represents ἰχθυηρά by *ekʿtʿeran*.[1] We have noted the tendency of Egyptian Greek to change these groups to πθ and κθ (p. 176). A similar tendency in Italian Greek is indicated by ἐκθρῶν in the papyrus manuscript of Philodemus *De Ira* 16. 24, 19. 11, 23. 30, 32. 25; *Apthonetus*, *CIL* v. 735 Add.; xii. 408; *Apthoni*, ix. 6078. 36, and by the orthography of Latin manuscripts as reported by Rahlfs, *Sitzungsberichte d. berl. Akad.*, 1912, p. 1040.

The statement of the grammarians that β, γ, and δ had an amount of breath or aspiration intermediate between that of the rough mutes and that of the smooth mutes is supported by several considerations.

There are two ways in which a mute may develop into a spirant. An increase in the force of the stream of breath makes the off-glide, or aspiration, more and more prominent until it is virtually equivalent to a spirant articulated in the same position as the mute. In this way *ph* becomes *pf*, *th* becomes *ts* or *tþ*, *kh* becomes *kχ*; that is, aspirates become affricates. In case the mute element of the affricate is lost a spirant results. On the other hand, the energy of articulating a mute may be decreased until the stream of breath is not checked but only obstructed so as to cause the rub-

[1] Kretschmer, *Glotta*, VI, 295 f.

bing noise which is characteristic of a spirant. It is clear that only aspirates can develop into spirants in the former manner, and only lenes in the latter. Hence we may be sure that Greek *φ*, *θ*, and *χ* have developed into the modern voiceless spirants through the intermediate stage of affricates. The ancient middle mutes, *β*, *δ*, and *γ*, may have changed into the modern voiced spirants in either of these two ways; but if they developed in the second way we have to assume that while one order of mutes became more energetic another became less so. Since similar sounds usually develop in the same direction in a given language, it is more likely that the middle mutes, like the aspirates, developed first into affricates.[1] This last consideration serves to confirm the testimony of the ancients that *β*, *δ*, and *γ* had more aspiration than *π*, *τ*, and *κ*; for, if this were not so, harmonious development of the three orders of mutes would have made spirants out of *π*, *τ*, and *κ* also (pp. 9 f.).

It is necessary to assume that the Greek aspirates were strongly articulated, for otherwise the closure could not have been maintained against the highly compressed breath behind it. For a similar reason *β*, *γ*, and *δ* must have had a fairly strong articulation. Since *κ*, *π*, and *τ* were not accompanied by a puff of breath, there was no need of a strong articulation in producing them. In other words, we may term the aspirates ultra-fortes, the middle mutes fortes, and the others lenes. Evidence has been given (pp. 93 ff.) which shows that Latin *b*, *d*, and *g* were weaker than *p*, *t*, and *c*. Consequently, as was there stated in detail, many loan-words show

[1] Otherwise Meillet, *MSL*, XIX, 163 ff.

the following correspondences: *b* = π, *d* = τ, *g* = κ, *p* = β, *t* = δ, *c* = γ.

There is clear proof that the modern spirant pronunciation of β, δ, and γ did not belong to Attic Greek in classical times or to standard Hellenistic Greek of the Alexandrian period. Their classification as ἄφωνα "mutes" rather than as ἡμίφωνα "semi-vowels" orginated with the Alexandrian scholars. Fundamentally the same idea appears in Plato's *Theaetetus* 203 B, where, however, the word ἄφωνα means "not vocalic."

> Τό τε σῖγμα τῶν ἀφώνων ἐστί, ψόφος τις μόνον, οἷον συριττούσης τῆς γλώττης· τοῦ δ' αὖ βῆτα οὔτε φωνὴ οὔτε ψόφος.[1]

The earliest clear indication of the spirant pronunciation of the voiced mutes is to be found in the omission of γ or the substitution of ι for it in the neighborhood of palatal vowels in various ancient dialects; for example, Boeotian ἰώ = ἐγώ, Aristophanes *Ach.* 898, etc., Arcadian Φιαλείας, Φιαλέες, etc. = Φιγαλείας, etc., *IG* v. ii. 419, 420, Pamphylian μhειάλε, *SGDI* 1267. 9, 10, 23, Tarentine ὀλίος, Herodian i. 141. 19 L. Similar forms appear in Attic in the latter part of the fourth century B.C.; for example, ὀλιαρχία, *IG* ii. Suppl. 231 *b* 59 (318 B.C.), ὀλίον, 623 *d* 22 (Macedonian period).[2]

In the Coptic-Greek glosses of the second century A.D., which were mentioned on page 179, δ frequently

[1] "Σ is one of the letters without vocalic sound; it is merely a noise, as if the tongue were whistling. B, on the other hand, has neither vocalic sound nor noise."

[2] The use of ϛ for δ in several early Elean inscriptions indicates that ϛ had become *d* rather than that δ had become a spirant (see Lagercrantz, *Zur griechischen Lautgeschichte*, p. 109). On the use of β for ϝ in late inscriptions and glosses, see p. 105. The most recent supporter of an early spirant pronunciation of β and δ is Meillet, *MSL*, XIX, 164 ff.

represents Coptic *ds* before ϵ and ϵι, although in other positions it represents Coptic *t* or *nt*. This seems to indicate that δ before ι had become an affricate (*dz* or *dʒ*) in Egyptian Greek. In the same century β became the prevailing representative of Latin *v* in Attic inscriptions, no doubt because β had become a spirant. In the fourth century A.D. Gothic orthography, following the Greek, employed *b*, *d*, and *g* to denote voiced spirants in the interior of the word, although the initial voiced mutes had to be written with the same characters, according to the Latin practice of Ulfilas' day.

As to the position in which the various mutes were articulated, Dionysius of Halicarnassus, *Comp. Verb.*, pp. 55. 11 to 57. 8 UR, furnishes valuable evidence:

Τῶν δὲ καλουμένων ἀφώνων ἐννέα ὄντων τρία μέν ἐστι ψιλά, τρία δὲ δασέα, τρία δὲ μεταξὺ τούτων· ψιλὰ μὲν τὸ κ καὶ τὸ π καὶ τὸ τ, δασέα δὲ τὸ θ καὶ τὸ φ καὶ τὸ χ, κοινὰ δὲ ἀμφοῖν τὸ β καὶ τὸ γ καὶ τὸ δ. φωνεῖται δὲ αὐτῶν ἕκαστον τρόπον τόνδε· τρία μὲν ἀπὸ τῶν χειλῶν ἄκρων, ὅταν τοῦ στόματος πιεσθέντος τότε προβαλλόμενον ἐκ τῆς ἀρτηρίας τὸ πνεῦμα λύσῃ τὸν δέσμον αὐτοῦ. καὶ ψιλὸν μέν ἐστιν αὐτῶν τὸ π, δασὺ δὲ τὸ φ, μέσον δὲ ἀμφοῖν τὸ β· τοῦ μὲν γὰρ ψιλότερόν ἐστι, τοῦ δὲ δασύτερον. μία μὲν αὕτη συζυγία τριῶν γραμμάτων ἀφώνων ὁμοίῳ σχήματι λεγομένων, ψιλότητι δὲ καὶ δασύτητι διαφερόντων. τρία δὲ ἄλλα λέγεται τῆς γλώττης ἄκρῳ τῷ στόματι προσερειδομένης κατὰ τοὺς μετεώρους ὀδόντας, ἔπειθ' ὑπὸ τοῦ πνεύματος ἀπορριπιζομένης καὶ τὴν διέξοδον αὐτῷ κάτω περὶ τοὺς ὀδόντας ἀποδιδούσης· διαλλάττει δὲ ταῦτα δασύτητι καὶ ψιλότητι· ψιλὸν μὲν γὰρ αὐτῶν ἐστι τὸ τ, δασὺ δὲ τὸ θ, μέσον δὲ καὶ ἐπίκοινον τὸ δ. αὕτη δευτέρα συζυγία τριῶν γραμμάτων ἀφώνων. τρία δὲ τὰ λοιπὰ τῶν ἀφώνων λέγεται μὲν τῆς γλώττης ἀνισταμένης πρὸς τὸν οὐρανὸν ἐγγὺς τοῦ φάρυγγος καὶ τῆς ἀρτηρίας ὑπηχούσης τῷ πνεύματι, οὐδὲν οὐδὲ ταῦτα διαφέροντα τῷ σχήματι ἀλλήλων, πλὴν ὅτι τὸ μὲν κ ψιλῶς λέγεται, τὸ δὲ χ δασέως, τὸ δὲ γ μετρίως καὶ μεταξὺ ἀμφοῖν. τούτων κράτιστα μέν ἐστιν ὅσα τῷ πνεύματι

πολλῷ λέγεται, δεύτερα δ' ὅσα μέσως, κάκιστα δὲ ὅσα ψιλῶς· ταῦτα μὲν γὰρ τὴν αὐτῶν δύναμιν ἔχει μόνην, τὰ δὲ δασέα καὶ τὴν τοῦ πνεύματος προσθήκην, ὥστ' ἐγγύς που τελειότερα εἶναι ἐκείνων.[1]

While this passage does not help us to decide whether δ, θ, and τ were alveolars or dentals, or whether γ, κ, and χ were palatals or velars, it does determine the relative position of the three classes of mutes. The last sentence of the passage cited (p. 187) from Archinus ap. Syrian indicates that κ was formed far back in the mouth. That δ, θ, and τ were dentals rather than alveolars is made probable by their articulation in modern Greek. The same inference may be drawn from their correspondence with the Hindoo dentals (examples on

[1] "Of the so-called 'mutes,' which are nine in number, three are smooth, three rough, and three between these. The smooth are κ, π, τ; the rough θ, φ, χ; the intermediate β, γ, δ. They are severally pronounced as follows: three of them from the edge of the lips, when the mouth is compressed and the breath, being driven forward from the windpipe, breaks through the obstruction. Among these π is smooth, φ rough, and β comes between the two, being smoother than the latter and rougher than the former. This is one set of three mutes, all three spoken with a like configuration of the organs, but differing in smoothness and roughness. The next three are pronounced by the tongue being pressed hard against the extremity of the mouth near the upper teeth, then being blown back by the breath, and affording it an outlet downwards round the teeth. These differ in roughness and smoothness τ being the smoothest of them, θ the roughest, and δ medial or common. This is the second set of three mutes. The three remaining mutes are spoken with the tongue rising to the palate near the throat, and the windpipe echoing to the breath. These, again, differ in no way from one another as regards formation; but κ is pronounced smoothly, χ roughly, γ moderately and between the two. Of these the best are those which are uttered with a full breath; next those with moderate breath; worst those with smooth breath, since they have their own force alone, while the rough letters have the breath also added, so that they are somewhere nearer perfection than the others."

p. 170) rather than with the cerebrals,[1] as is the case with the alveolars of modern English (*Laṇḍaṇa = London*). In other respects the loan-words, examples of which have been cited above, tend to confirm the statements of Dionysius but add nothing to them.

It is probable that Attic ττ corresponding to Ionic σσ (τέτταρες, φυλάττω, θάλαττα, etc.) was identical in quality with τ in other words. It certainly differed from Ionic σσ; for otherwise the spelling ττ would not have been retained after the introduction of the Ionic alphabet. Thessalian ττ must have represented a doubled mute at the time when Φετταλός became Πετθαλός by metathesis of aspiration.[2]

Double Consonants[3]

Most of the ancient accounts of ξ, ψ, and ζ say that they were compounds of mutes with σ.

Syrian. *In Metaph.*, p. 191. 29–35, Kroll: ταύτῃ δὲ τῇ ἀποδόσει καὶ Ἀρχῖνος ἐχρῆτο, ὡς ἱστορεῖ Θεόφραστος· ἔλεγε δὲ ὁ Ἀρχῖνος ἢ ἔξω τι παρὰ τὴν μύσιν τῶν χειλῶν ἐκφωνεῖσθαι, ὥσπερ τὸ π, καὶ διὰ τοῦτο τὸ ψ πρὸς τῷ ἄκρῳ γεννᾶσθαι τῆς γλώττης ὡς ἐκ τοῦ π σ συγκείμενον· ἢ τῷ πλάτει τῆς γλώττης παρὰ τοὺς ὀδόντας, ὥσπερ τὸ δ, καὶ διὰ τοῦτο τὸ ζ κατὰ ταύτην γεννᾶσθαι τὴν χώραν· ἢ τῷ κυρτῷ πιεζομένῳ ἐκ τοῦ ἐσχάτου, ὥσπερ τὸ κ, ὅθεν τὸ ξ προϊέναι.[4]

[1] Bendall, *J. of Ph.*, XXIX, 201.

[2] Foot, *JHS*, XXV, 338 ff.; XXVI, 286 f.; Lagercrantz, *Zur griechischen Lautgeschichte.*

[3] O. Lagercrantz, *Zur griechischen Lautgeschichte* (especially pp. 125–52), Upsala, 1898.

[4] "Archinus also used this explanation, as Theophrastus says. Archinus said that either a sound is pronounced outside near the closing of the lips, as π, and for this reason ψ is produced near the tip of the tongue as being composed of π and σ; or with the blade of the tongue near the teeth, as δ, and for this reason ζ is produced in this place; or with the arched tongue pressed upon from the back of the mouth, as κ, whence comes ξ."

Dionysius Thrax, p. 14. 4 ff., Uhlig: ἔτι δὲ τῶν συμφώνων διπλᾶ μέν ἐστι τρία, ζ ξ ψ. διπλᾶ δὲ εἴρηται ὅτι ἓν ἕκαστον αὐτῶν ἐκ δύο συμφώνων σύγκειται, τὸ μὲν ζ ἐκ τοῦ σ καὶ δ, τὸ δὲ ξ ἐκ τοῦ κ καὶ σ, τὸ δὲ ψ ἐκ τοῦ π καὶ σ.[1]

Dionysius of Halicarnassus *Comp. Verb.*, p. 53. 1–7, UR: διπλᾶ δὲ τρία, τό τε ζ καὶ τὸ ξ καὶ τὸ ψ. διπλᾶ δὲ λέγουσιν αὐτὰ ἤτοι διὰ τὸ σύνθετα εἶναι, τὸ μὲν ζ διὰ τοῦ σ καὶ δ, τὸ δὲ ξ διὰ τοῦ κ καὶ σ, τὸ δὲ ψ διὰ τοῦ π καὶ σ συνεφθαρμένων ἀλλήλοις ἰδίαν φωνὴν λαμβάνοντα, ἢ διὰ τὸ χώραν ἐπέχειν δυεῖν γραμμάτων ἐν ταῖς συλλαβαῖς παραλαμβανόμενον ἕκαστον.[2]

The second definition in the last passage may be based upon the popular pronunciation of ζ in Dionysius' day (pp. 190 f.), or, since it seems to apply to ξ and ψ as well, it may represent a theory based upon orthography and as false as the opinion of most speakers of English that the first letter of *Jane* represents a single sound.

The equivalence of ξ and ψ to κσ and πσ respectively is confirmed by the etymology of such words as πράξω, πέμψω, by Latin and other transcriptions with *x* and *ps*, and also by the pronunciation of modern Greek, which in this case agrees with our ancient authorities. In these combinations, however, κ and π were pronounced with more energy than elsewhere. This is shown by those local alphabets, including early Attic, which lacked special symbols for ξ and ψ and employed instead χσ and φσ. That the same pronunciation was current in Hellenistic times appears from Armenian transcrip-

[1] "Furthermore three of the consonants are double, ζ, ξ, and ψ. They are called double because each one of them is composed of two consonants, ζ of σ and δ, ξ of κ and σ, ψ of π and σ."

[2] "Three are double, viz., ζ, ξ, ψ. They are called double either because they are composite, receiving a distinctive sound through the coalescence respectively of σ and δ into ζ, of κ and σ into ξ, and of π and σ into ψ; or because they occupy the room of two letters in the syllables where they are found."

tions such as *k'sest* = ξέστης, *k'sip'iē* = ξιφίας, *p'senas* = ψῆνας, *p'siat'* = ψίαθος.

As to ζ, there is evidence for three different pronunciations in ancient times. The passages cited above from Dionysius Thrax and Dionysius of Halicarnassus declare that ζ had the sound of σ+δ (i.e., *zd*), and this doctrine is supported by several considerations. (1) In a number of words ζ resulted from the combination of σ (or *z*) and δ. Ἀθήναζε, θύραζε, etc., are from *Ἀθᾱνανσ-δε, etc. (cf. οἶκόνδε). Διόζοτος is a graphic variant of Διόσδοτος. Attic ὄζος, Lesbian ὔσδος, "bough" is cognate with Gothic *asts* and German *Ast*, while ὄζος "comrade" (ὄζος Ἄρηος, etc.) is probably from *ὀ-σδος with the reduced grade of ὁδός.[1] (2) Greek ζ sometimes represents *zd* or *žd* of foreign languages; for example, Ὠρομάζης = Old Persian *Auramazda*, Ps.-Plato *Alcib.* 122 A, etc.; Ἀρτάβαζος, Herodotos *passim*, and Ἀρτάοζος, Xenophon *An.* ii. 4. 16, etc. = Old Persian **Artavazda;* Ἄζωτος = Semitic *Ashdod*, Herodotos ii. 157, etc. (3) The regular loss of nasals before σ appears also before ζ, as in Ἀθήναζε, συζεύγνυμι, σύζυξ, πλάζω from *πλαγγι̯ω, Delphian ἀζετωθέωντι from *ἀν-ζετω-.[2] (4) By the loss of σ or *z* between consonants (as in δέκτο from *δέξτο, βδέω from *βzδέω, etc.) *ϝέρζω became Aeolic and Ionic ἔρδω and *ἀμέρζω became Aeolic ἀμέρδω.[3] These considerations establish the pronunciation *zd* for primitive Greek and for several of the later dialects, including Attic and Ionic.

On the other hand, the etymology of ζ more often favors the pronunciation *dz;* δι̯ (ἐλπίζω, πεζός, Ζεύς:

[1] Brugmann-Thumb, p. 149, and references.

[2] *Ibid.*, p. 87. [3] *Ibid.*, pp. 149 ff.

Sanskrit *Dyaus*) and γι (πλάζω : πλάγξαι; ἁρπάζω: ἅρπαξ; μέζων : μέγας) must first have yielded *dz* rather than *zd*. We must therefore assume the pronunciation *dz* for some period in primitive Greek, and for some period in the history of those dialects which later changed δι into ζ or ζι (Aeolic ζα- = δια-, Lesbian Ζόννυσος, κάρζα, Cyprian κορζία, etc.). The pronunciation *dz* must have been current among the early Italian Greeks; for in Etruscan, Oscan, and Umbrian the character I represented the sound *ts*, with *t* for δ as in Latin *citrus* for κέδρος (p. 98). The use of *z* in Italian in the value of *dz* (*orzo*) and *ts* (*grazia*, etc.) proves that this primitive value of the character has always survived on Italian soil. Consequently we may accept as bona fide evidence the record of this pronunciation in Velius Longus' citation from Verrius Flaccus (quoted on p. 116). While primitive Greek *dz* became *zd* in Attic and Ionic, it is clear that some other dialects retained *dz* unchanged. Probably Lesbian employed both sounds, if we may judge from the occasional use of σδ in place of general Greek ζ (ὕσδος) and of ζ in place of general Greek δι (ζά, κάρζα).[1]

Beginning with the year 340 B.C., Attic inscriptions show confusion between σ and ζ; for example, ἐπεψήφισεν (=-ζεν), *IG* ii. 117 *a* 3 (340 B.C.), Σεύς, 707. 10 (340 B.C.), συναγωνισζόμενος, 352. 8 (before 260 B.C.), Τρικυρύζιος, 2594 (before 146 B.C.), Ζμυρναῖος, 966 A 19. 1 (*ca.* 191 B.C.).[2] The change of ζ to a voiced sibilant,

[1] Cf. Buck, pp. 24, 66. It is unlikely that the spelling with δι would have persisted if its pronunciation had been *z;* but the spelling δι for *dz* is not so strange.

[2] Other examples in Meisterhans-Schwyzer, pp. 88, 92.

which such confusion indicates, is reflected in Aristotle's hesitation as to the real character of the sound.

Aristotle, *Metaph.* 993 *a* 4: Ἀμφισβητήσειε γὰρ ἄν τις, ὥσπερ καὶ περὶ ἐνίας συλλαβάς· οἱ μὲν γὰρ τὸ ζα[1] ἐκ τοῦ σ καὶ δ[2] καὶ α φασὶν εἶναι, οἱ δέ τινες ἕτερον φθόγγον φασὶν εἶναι καὶ οὐθένα τῶν γνωρίμων.[3]

In loan-words ζ corresponds to Hindoo *j*, *jh*, *ch*, *ç*, or *y*; for example, Ὀζήνη = *Ujjayinī*, Ptolemy vii. 1. 63, etc., *Jhoïlasa* = Ζωΐλου, Gardner, *Indian Coins*, pp. 52, 170, Βαρύγαζα = *Bharukacchas*, Ptolemy vii. 1. 62. etc., Ζάραδρος = *Çatadruṣ*, vii. 1. 27, 42, *Ayasa* = Ἄζου, Gardner, *Indian Coins*, pp. 73, etc. They are all mere approximations to a foreign sound; but if Hellenistic ζ had been pronounced *zd* none of these correspondences would have been possible. Sanskrit *j* and *jh* might easily represent the sound *dz;* but ζ = *dz* could not have represented *ç* or *y*. Early Latin *s* or *ss* (*massa* = μάζα, *Setus* = Ζῆθος) was also a natural representation of the sound *z*, but not of *zd* or *dz*. Furthermore the use of ζ for Latin consonantal *i* (κόζους = *coiux*, *IG* xiv. 698, 1516, 1910 *a*, 2192, Ζούλιαι, 1349, Ζουλιάνη, 1910 *a*) is incomprehensible if ζ had the sound of *dz* or *zd*. We may conclude, then, that ζ had the value of *z* in Attic and Hellenistic Greek from about 340 B.C., as it still has in modern Greek.

The grammarians long continued to teach the pronunciation *zd* (see the passage from Dionysius of Halicarnassus on p. 188), and no doubt this was for a time a peculiarity of the speech of educated people.

[1] MS, σμα; Schol. ζα. [2] MS, μ; Schol. δ.

[3] "For one might be in doubt, just as about certain syllables; for some say that ζα consists of σ, δ, and α, while others say that it is a different sound which is not one of the familiar sounds."

CHAPTER IV

THE GREEK ACCENT[1]

The earliest extant reference[2] to Greek accent is in Plato.

Cratylus 399 A: Πρῶτον μὲν γὰρ τὸ τοιόνδε δεῖ ἐννοῆσαι περὶ ὀνομάτων, ὅτι πολλάκις ἐπεμβάλλομεν γράμματα, τὰ δ' ἐξαιροῦμεν, παρ' ὃ βουλόμεθα ὀνομάζοντες, καὶ τὰς ὀξύτητας μεταβάλλομεν. οἷον Διὶ φίλος· τοῦτο ἵνα ἀντὶ ῥήματος ὄνομα ἡμῖν γένηται, τό τε ἕτερον αὐτόθεν ἰῶτα ἐξείλομεν καὶ ἀντὶ ὀξείας τῆς μέσης συλλαβῆς βαρεῖαν ἐφθεγξάμεθα.[3]

The change of accent here discussed is the loss of the accent of φίλος when it becomes the second member of the compound Δίφιλος, and it is described as a change from ὀξεῖα (τάσις) "acute accent" to βαρεῖα (τάσις)

[1] Hatzidakis, Ἀκαδημεικὰ ἀναγνώσματα εἰς τὴν Ἑλληνικὴν . . . . γραμματικήν (especially I, 462–608), Athens, 1902; Vendryes, *Traité d' accentuation grecque* (especially pp. 19–51), Paris, 1904; Ehrlich, *Untersuchungen über die Natur der griechischen Betonung*, Berlin, 1912; Brugmann, *Griechische Grammatik*, fourth edition, by Thumb (especially pp. 176–87), Munich, 1913; Kretschmer, *KZ*, XXX, 591 ff.; Wackernagel, *Beiträge zur Lehre vom griechischen Akzent* (especially pp. 3–19), Basel, 1893, *Rh.M.*, LI, 304 ff.; Pedersen, *KZ*, XXXVIII, 336 ff.; Meillet, *MSL*, XIII, 245 ff., XX, 165 ff.; Sturtevant, *TAPA*, XLII, 45 ff., *CP*, VIII, 482 ff.; Bergfeld, *Glotta*, VII, 3; Turner, *CR*, XXIX, 195 f.; Clara M. Knight, *J. of Ph.*, XXXV, 51 ff.

[2] For Varro's report of an earlier treatment, see pp. 199 f.

[3] "For in the first place we must make some such observation as this about words, that when we derive a name from what we please, we often put in additional letters, and take others out, and alter the accents. For example, in order that Διὶ φίλος may be a word instead of a phrase, we have taken out one of the two iotas, and in place of the acute of the middle syllable we have pronounced a grave."

"grave accent." If we should interpret the former as "loud sound, strong stress," then *βαρεῖα* must mean "faint sound, weak stress." That the adjective *βαρύς* cannot have such a force is shown, for example, by *Od.* ix. 257, where the voice of the Cyclops is called *φθόγγος βαρύς*, and also by the epithets of Zeus, *βαρυβρεμέτης, βαρύγδουπος, βαρύκτυπος, βαρύοπα*, etc. We must therefore understand the words *ὀξεῖα* and *βαρεῖα* as we do when Plato speaks of music.

Phaedrus 268 D: Ἀλλ' *ὥσπερ ἂν μουσικὸς ἐντυχὼν ἀνδρὶ οἰομένῳ ἁρμονικῷ εἶναι, ὅτι δὴ τυγχάνει ἐπιστάμενος ὡς οἷόν τε ὀξυτάτην καὶ βαρυτάτην χορδὴν ποιεῖν, οὐκ ἀγρίως εἴποι ἄν. . . .*[1]

The Greek acute accent was therefore high pitch, and the grave accent was low pitch. It is for this reason that the terms for "accent," *τόνος, τάσις, προσῳδία*, are all musical terms.

The grammarians always speak of the accent as a matter of pitch.

Dionysius Thrax, pp. 6. 15—7. 2, Uhlig: Τόνος *ἐστὶ φωνῆς ἀπήχησις ἐναρμονίου, ἢ κατὰ ἀνάτασιν ἐν τῇ ὀξείᾳ, ἢ κατὰ ὁμαλισμὸν ἐν τῇ βαρείᾳ,*[2] *ἢ κατὰ περίκλασιν ἐν τῇ περισπωμένῃ.*[3]

Dionysius Halicarnaseus *Comp. Verb.*, pp. 40. 17—42. 14 UR: *Διαλέκτου μὲν οὖν μέλος ἑνὶ μετρεῖται διαστήματι τῷ λεγομένῳ διὰ πέντε ὡς ἔγγιστα, καὶ οὔτε ἐπιτείνεται πέρα τῶν τριῶν τόνων καὶ ἡμιτονίου ἐπὶ τὸ ὀξὺ οὔτ' ἀνίεται τοῦ χωρίου τούτου πλέον ἐπὶ τὸ βαρύ. οὐ μὴν ἅπασα λέξις ἡ καθ' ἓν μόριον λόγου*

[1] "But just as a musician, if he should meet a man who thought he was skilled in music just because he understood how it is possible to give a chord the highest pitch and the lowest, would not furiously say. . . . "

[2] Here and in the following passages *βαρεῖα* has to be understood as level accent, lack of accent. For its other meaning, see pp. 202 ff.

[3] "Accent is a modification of the musical voice, by elevation in the acute, by leveling in the grave, by breaking in the circumflex."

ταττομένη ἐπὶ τῆς αὐτῆς λέγεται τάσεως, ἀλλ' ἡ μὲν ἐπὶ τῆς ὀξείας, ἡ δ' ἐπὶ τῆς βαρείας, ἡ δ' ἐπὶ ἀμφοῖν. τῶν δὲ ἀμφοτέρας τὰς τάσεις ἐχουσῶν αἱ μὲν κατὰ μίαν συλλαβὴν συνεφθαρμένον ἔχουσι τῷ ὀξεῖ τὸ βαρύ, ἃς δὴ περισπωμένας καλοῦμεν· αἱ δὲ ἐν ἑτέρᾳ τε καὶ ἑτέρᾳ χωρὶς ἑκάτερον ἐφ' ἑαυτοῦ τὴν οἰκεῖαν φυλάττον φύσιν. καὶ ταῖς μὲν δισυλλάβοις οὐδὲν τὸ διὰ μέσου χωρίον βαρύτητός τε καὶ ὀξύτητος· ταῖς δὲ πολυσυλλάβοις, ἡλίκαι ποτ' ἂν ὦσιν, ἡ τὸν ὀξὺν τόνον ἔχουσα μία ἐν πολλαῖς ταῖς ἄλλαις βαρείαις ἔνεστιν.

ἡ δὲ ὀργανική τε καὶ ᾠδικὴ μοῦσα διαστήμασί τε χρῆται πλείοσιν, οὐ τῷ διὰ πέντε μόνον, ἀλλ' ἀπὸ τοῦ διὰ πασῶν ἀρξαμένη καὶ τὸ διὰ πέντε μελῳδεῖ καὶ τὸ διὰ τεττάρων καὶ ⟨τὸ διὰ τριῶν καὶ τὸν⟩ τόνον καὶ τὸ ἡμιτόνιον, ὡς δέ τινες οἴονται, καὶ τὴν δίεσιν αἰσθητῶς· τάς τε λέξεις τοῖς μέλεσιν ὑποτάττειν ἀξιοῖ καὶ οὐ τὰ μέλη ταῖς λέξεσιν, ὡς ἐξ ἄλλων τε πολλῶν δῆλον καὶ μάλιστα ἐκ τῶν Εὐριπίδου μελῶν, ἃ πεποίηκεν τὴν Ἠλέκτραν λέγουσαν ἐν Ὀρέστῃ πρὸς τὸν χορόν·

> *σῖγα σῖγα, λευκὸν ἴχνος ἀρβύλης*
> *τίθετε, μὴ κτυπεῖτ'·*
> *ἀποπρόβατ' ἐκεῖσ', ἀποπρό μοι κοίτας.*

ἐν γὰρ δὴ τούτοις τὸ 'σῖγα σῖγα, λευκὸν' ἐφ' ἑνὸς φθόγγου μελῳδεῖται, καίτοι τῶν τριῶν λέξεων ἑκάστη βαρείας τε τάσεις ἔχει καὶ ὀξείας. καὶ τὸ 'ἀρβύλης' τῇ μέσῃ συλλαβῇ τὴν τρίτην ὁμότονον ἔχει, ἀμηχάνου ὄντος ἓν ὄνομα δύο λαβεῖν ὀξείας. καὶ τοῦ 'τίθετε' βαρυτέρα μὲν ἡ πρώτη γίνεται, δύο δ' αἱ μετ' αὐτὴν ὀξύτονοί τε καὶ ὁμόφωνοι. τοῦ τε 'κτυπεῖτε' ὁ περισπασμὸς ἠφάνισται· μιᾷ γὰρ αἱ δύο συλλαβαὶ λέγονται τάσει. καὶ τὸ 'ἀποπρόβατε' οὐ λαμβάνει τὴν τῆς μέσης συλλαβῆς προσῳδίαν ὀξεῖαν, ἀλλ' ἐπὶ τὴν τετάρτην συλλαβὴν μεταβέβηκεν ἡ τάσις ἡ τῆς τρίτης.[1]

[1] "Now, the melody of spoken language is measured by a single interval, which is approximately that termed a fifth. When the voice rises toward the acute, it does not rise more than three tones and a semitone; and when it falls toward the grave, it does not fall more than this interval. Further, the entire utterance during one word is not delivered at the same pitch of the voice throughout, but one part of it at the acute pitch, another at the grave, another at both. Of the

Arcadius, pp. 186. 16—188. 11 (*ap.* Herodian. i, pp. xxxviii f. Lentz): Κατὰ τοῦτο καὶ ὁ Ἀριστοφάνης σημεῖα ἔθετο τῷ λόγῳ πρῶτα ταῦτα, ἵν' ἅμα συλλαβῆς καὶ λέξεως γενομένης κανών τις ἕποιτο καὶ σημεῖον ὀρθότητος· ἔπειτα τρίχα τεμὼν τὴν κίνησιν τῆς φωνῆς τὸ μὲν εἰς χρόνους, τὸ δὲ εἰς τόνους, τὸ δὲ εἰς αὐτὸ τὸ πνεῦμα. καὶ τοὺς μὲν χρόνους τοῖς ῥυθμοῖς εἴκασε, τοὺς δὲ τόνους τοῖς τόνοις τῆς μουσικῆς. καὶ σημεῖα ἔθετο ἐφ' ἑκάστῳ καὶ ὀνόματα, τοῖς μὲν χρόνοις τὸ βραχὺ καὶ τὸ μακρὸν ἐπονομάσας καὶ σχήματα οἰκεῖα ποιησάμενος, τῷ μὲν μακρῷ τὴν εὐθεῖαν γραμμὴν καὶ ἀποτεταμένην ¯, τῷ δὲ βραχεῖ τὴν συνεστραμμένην καὶ συνέχουσαν ὥσπερ ἑκατέρωθεν τὴν φωνὴν ˘.

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words that have both pitches, some have the grave fused with the acute on one and the same syllable—those which we call circumflexed; others have both pitches falling on separate syllables, each retaining its own quality. Now in disyllables there is no space intermediate between low pitch and high pitch; while in polysyllabic words, whatever their number of syllables, there is but one syllable that has the acute accent (high pitch) among the many remaining grave ones. On the other hand, instrumental and vocal music uses a great number of intervals, not the fifth only; beginning with the octave, it uses also the fifth, the fourth, the third, the tone, the semitone, and, as some think, even the quarter-tone in a distinctly perceptible way. Music, further, insists that the words shall be subordinate to the tune, and not the tune to the words. Among many examples in proof of this, let me especially instance these lyrical lines which Euripides has represented Electra as addressing to the chorus in the *Orestes:*

'Hush ye, O hush ye! light be the tread
Of the sandal; no jar let there be!
Afar step ye thitherward, far from his bed.'

In these lines the words σῖγα σῖγα, λευκόν are sung to one note; and yet each of the three words has both low pitch and high pitch. And the word ἀρβύλης has its third syllable sung at the same pitch as its middle syllable, although it is impossible for a single word to take two acute accents. The first syllable of τίθετε is sung to a lower note, while the two that follow it are sung to the same high note. The circumflex accent of κτυπεῖτε has disappeared, for the two syllables are uttered at one and the same pitch. And the word ἀποπρόβατε does not receive the acute accent on the middle syllable; but the pitch of the third syllable has been transferred to the fourth."

τῶν δὲ τόνων τὴν μὲν ἄνω τείνουσαν καὶ εὐθεῖαν καὶ εἰς ὀξὺ ἀπολήγουσαν ἐοικυῖαν τοῖς βέλεσι τοῖς ἐφιεμένοις, ὀξεῖαν ἐπονομάσας ´· τὴν δὲ ἐναντίαν ταύτῃ βαρεῖαν `· ἐπεὶ δὲ ἑώρα τὴν ἔξω τοῦ μέλους λέξιν οὐ κατὰ τὸ βαρὺ μόνον οὐδ' ἐν τῷ ὀξεῖ καταμένουσαν, ἀλλὰ καὶ τρίτου τινὸς δεομένην τόνου, τούτου δὴ τοῦ περισπωμένου, πρότερον αὐτῆς τῆς φωνῆς τὴν δύναμιν ἐσκοπεῖτο. καὶ ἐπεὶ συνέβαινε ταῖς περισπωμέναις λέξεσιν εὐθὺς ἀρχομένην τὴν φωνὴν ὀξύ τι ὑπηχεῖν, κατατρέπειν δὲ ὡς εἰς τὸ βαρύ, οὐδὲν ἄλλο ἢ μίξιν και κρᾶσιν ἐξ ἀμφοῖν, τοῦ τε ὀξέος καὶ τοῦ βαρέος, ἡγησάμενος εἶναι τὸ περισπώμενον, οὕτως αὐτῷ καὶ τὸ σχῆμα ἐποιήσατο. ἐφαρμοσάμενος γὰρ ἀλλήλαις τὰς εὐθείας ἑκατέρας, τήν τε τοῦ ὀξέος καὶ τὴν τοῦ βαρέος ^, ταύτην εἶναι τὴν περισπωμένην ἔλεγεν, ὧδέ πως αὐτὴν ἐξ ἀμφοῖν τοῖν τόνοιν ἐξ ὧν ἐγένετο ὀξυβάρειαν ὀνομάζων. ἐπεὶ δὲ ὁμοιότητα τὸ σχῆμα τοῦ τόνου πρὸς τῶν γραμμάτων ἔμελλεν ἕξειν το Λ, δεδοικὼς μή τι ἄρα ἐν τῇ παραθέσει τῶν γραμμάτων παραμιγνύηται ἡ ἀνάγνωσις, βραχύ τι τῶν εὐθειῶν τὴν γωνίαν κλάσας καὶ περιτείνας αὐτὰς εἰς ἡμικύκλιον, ἅμα τῷ σχήματι τῆς περισπωμένης καὶ τὸ ὄνομα ἐπὶ τὸ οἰκειότερόν τε καὶ εὐφωνότερον μετέβαλεν.[1]

[1] "In this way also Aristophanes applied to speech first these diacritic marks, so that at the same time when syllable and word were written there might accompany them a standard and symbol of their correct pronunciation; then he observed the triple modification of the voice in respect to quantity, accent, and breathing. Quantity he compared with rhythm, and accent with the tones of music. He also assigned symbols and names to each; he named the quantities short and long, and formed appropriate symbols; for the long quantity the straight, extended line (¯), for the short the curved line which seems to hold the sound back from both directions (˘). Of the accents, the straight one which points upwards like an arrow being aimed (´) and which indicates a sharp sound (*or* ends in a point?) he named acute, and the one pointing in the other direction (`) he named grave. Since he saw that speech which is not sung does not confine itself merely to the grave and the acute, but that it needs also a third accent, namely the circumflex, first he observed the character of the voice itself. And since it proved that in circumflexed words the voice at first gives an acute sound and then brings it down about to the pitch of the grave, thinking that the circumflex is nothing but a mixture and mingling of them both,

The testimony of the grammarians as to the musical character of the Greek accent is supported by a number of other considerations:

1. The Greek accent corresponds in general with the Sanskrit accent, which was described as musical by the Hindoo grammarians. The following pairs of words are typical: *pitā́* : πατήρ; *pitáras* : πατέρες; *bhrā́tā* : φράτωρ; *úttaras* : ὕστερος, *jánas* : γένος; *jánasas* : γένεος; *bháranti* : φέροντα; *gurúṣ* : βαρύς; *janitā́* : γενετήρ; *hitás* : θετός; *ákṣitas* : ἄφθιτος; *pā́das* : πόδες; *padás* : ποδός. There are traces in some of the other related languages of this system of accentuation. We may therefore conclude that Greek inherited a musical accent.

2. A strong stress accent produces extensive alterations of the character and quantity of the vowels, such as the weakening, shortening, and syncope which characterize the Latin vowel-system (pp. 206 ff.). Since Greek shows nothing of the sort in its earlier stages,[1] we are justified in holding that it had little stress accent.

3. A stress accent associates itself with the rhythm of speech and poetry; either it forms the basis of the rhythm, as in the Germanic languages, including English, or at least it tends to coincide with the time-beats, as

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namely the acute and the grave, he thus formed a symbol for it. For, having joined together the two straight accents, that of the acute and that of the grave (^), he declared that this was the circumflex, thus naming it ὀξυβάρεια (acute-grave) from the two accents from which it arose. But since the symbol of the accent was going to resemble one of the letters, namely Λ, fearing that when it was written along with the letters the recognition of them would be confused, he broke the angle of the straight lines a little and bent them into a semicircle, and while changing the symbol he also changed the name into the more suitable and euphonious name of circumflex."

[1] Ehrlich, *op. cit.*, pp. 1–249.

in Latin (pp. 211 ff.). In Greek poetry there appears to be no relationship between verse ictus and accent.

4. On the other hand it is only a pitch accent that can have any connection with the melody of song. In the extant Delphic hymns of about 100 B.C. account is taken of the accent in two ways: (1) An unaccented syllable is usually not sung on a note higher than the accented syllable of the same word. (2) If a circumflexed syllable is slurred, the first part of it is sung on a higher note than the second.[1]

This last fact confirms the statements of the grammarians that the circumflex is a combination of acute and grave. The name *περισπωμένη* seems to mean "bent around, altered." The composite nature of the circumflex explains the fact that an enclitic adds an acute to a properispomenon (*σῶμά τε*) but not to a paroxytone (*λόγος τε*); in the former case the two high-pitched accents are separated by a grave.

In several passages there is reference to a fourth kind of accent which appears to have been intermediate between high pitch and low pitch.[2]

Aristotle *Rhet.* 1403 *b* 24–29: *Δῆλον οὖν ὅτι καὶ περὶ τὴν ῥητορικὴν ἔστι τὸ τοιοῦτον ὥσπερ καὶ περὶ τὴν ποιητικήν, ὅ περ ἕτεροί τινες ἐπραγματεύθησαν καὶ Γλαύκων ὁ Τήιος. ἔστι δὲ*

[1] See Wackernagel, *Rh.M.*, LI, 304 ff. The fragments of the Delphic hymns have been published by Jan in the supplement to his *Musici Scriptores Graeci*, Leipzig, 1899. Contrast the lack of harmony between music and accent in Euripides, as described by Dionysius of Halicarnassus (quoted on p. 194).

[2] Ehrlich, *op. cit.*, pp. 250–59. The strongest evidence against the theory of the middle accent is the statement (quoted on p. 193) from Dionysius of Halicarnassus that the melody of spoken language is measured by a single interval. Is he stating a part of the truth without warning us that his treatment is incomplete?

αὐτὴ μὲν ἐν τῇ φωνῇ, πῶς αὐτῇ δεῖ χρῆσθαι πρὸς ἕκαστον πάθος, οἷον πότε μεγάλῃ καὶ πότε μικρᾷ καὶ πότε μέσῃ, καὶ πῶς τοῖς τόνοις, οἷον ὀξείᾳ καὶ βαρείᾳ καὶ μέσῃ.[1]

Idem Poet. 1456 *b* 30–34: Ταῦτα δὲ ⟨τὰ στοιχεῖα⟩ *διαφέρει σχήμασίν τε τοῦ στόματος καὶ τόποις καὶ δασύτητι καὶ ψιλότητι καὶ μήκει καὶ βραχύτητι, ἔτι δὲ ὀξύτητι καὶ βαρύτητι καὶ τῷ μέσῳ· περὶ ὧν καθ' ἕκαστον ἐν τοῖς μετρικοῖς προσήκει θεωρεῖν.*[2]

Many scholars have assumed that Aristotle's middle accent was the circumflex; but "intermediate" would be a peculiarly inept name for an accent which contained within itself both the extremes. Furthermore, Aristotle elsewhere (*Soph. El.* 179 *a* 14) included the circumflex under the term *ὀξεῖα προσῳδία*;[3] that is, he used the terminology which, according to Varro, was afterward advocated by Athenodorus (see below).

The fullest account of the middle accent is in a passage in which Sergius (?) reports a discussion of the topic by Varro.

Sergius (?) iv. 529. 4 ff. K. = Varro, pp. 213. 11—214. 9, 215. 5–22 GS: Athenodorus duas esse prosodias putavit, unam inferiorem, alteram superiorem; flexam autem—nam ita nostra lingua *περισπωμένην* vocavimus—nihil aliud esse quam has duas in una syllaba. Dionysius autem, Aristarchi discipulus, cognomento Thrax, domo Alexandrius, qui Rhodi docuit, lyricorum

[1] "It is clear, then, that there is a kind of skill similar to that in regard to poetry, and this has been treated by Glaucon of Teos and others. It has to do with the voice; how one should use it for each emotion, as, for example, when one should make it loud and when soft and when intermediate, and how one should use the accents, namely the acute, the grave, and the middle accent."

[2] "And these speech-sounds differ in the configuration of the mouth, in the place of articulation, in roughness and smoothness, in length and shortness, and also in acute, grave, and middle accent; each of which topics should be discussed in connection with metrics."

[3] Wackernagel, *op. cit.*, pp. 8–12.

poetarum longe studiosissimus, tres tradidit quibus nunc omnes utuntur, βαρεῖαν, ὀξεῖαν, περισπωμένην. Tyrannio vero Amisenus, quem Lucullus Mithridatico bello captum Lucio Murenae concessit, a quo ille libertate simul et civitate donatus est, quattuor scribit esse prosodias, βαρεῖαν, μέσην, ὀξεῖαν, περισπωμένην. . . . .

Scire enim oportet rationis huius recens non esse commentum, sed omnium qui ante Varronem et Tyrannionem de prosodia aliquid reliquerunt plurimos et clarissimos quosque mediae huius fecisse mentionem, quos omnes sibi fuisse auctores Varro commemorat; grammaticos Glaucum Samium et Hermocratem Iasium, item philosophum Theophrastum peripateticum, cui divina facundia nomen adscivit, nec non eiusdem sectae Athenodorum, summi acuminis virum, qui quandam prosodiam μονότονον appellat quae videtur non alia esse quam media licet diverso vocabulo. Nec desunt qui prosodias plures esse quam quattuor putaverint, ut Glaucus Samius a quo sex prosodiae propositae sub hisce nominibus, ἀνειμένη, μέση, ἐπιτεταμένη, κεκλασμένη, ⟨ἀνακλωμένη,⟩ ἀντανακλωμένη. Sed hic quoque non dissentit a nobis; nam cuivis ex ipsis nominibus intellectu proclive est tres primas esse simplices et non alias quam βαρεῖαν, μέσην, ὀξεῖαν, postremas autem tres duplices et quasi species unius flexae, quae est genere una.[1]

[1] "Athenodorus thought there were two accents, one lower and one higher; and that the circumflex—for thus we translate περισπωμένη—was nothing but these two in one syllable. Dionysius, however, pupil of Aristarchus, Thracian by surname, Alexandrian by residence, who taught at Rhodes, by far the greatest student of the lyric poets, is our authority for the three accents which everybody now uses, grave, acute, and circumflex. But Tyrannio Amisenus, whom Lucullus captured in the Mithridatic war and gave to Lucius Murena, and who was presented by the latter at the same time with his liberty and the citizenship, writes that there are four accents, grave, middle, acute, and circumflex. . . . .

"It is necessary to understand that this theory is no recent invention, but of all who before Varro and Tyrannio have left any notice of accent, the majority and all the distinguished writers have mentioned this middle accent, all of whom Varro says were his authorities; of the grammarians Glaucus of Samos and Hermocrates of Iasos, and likewise the Peripatetic philosopher Theophrastus, which name he got from his divine eloquence, and also Athenodorus of the same sect, a man of the

The earliest of the authorities here cited is Glaucus of Samos, whom Socrates mentions in Plato *Phaedo* 108 D.

It is likely that the middle accent is to be ascribed to the syllables which are marked grave in our texts; that is, to the final syllables of oxytones when not followed by a pause. It appears from Plato *Cratylus* 399 A (quoted on p. 192), that between Διὶ φίλος and Δίφιλος the only noteworthy differences were the absence of the first ι and of the accent of the middle syllable in the compound; hence the so-called grave of Διὶ must have been similar to the acute of Δίφιλος. Dionysius of Halicarnassus *De Comp. Verb.*, p. 42. 4–6 UR (quoted on p. 194), says that in Euripides' line:

σῖγα σῖγα, λευκὸν ἴχνος ἀρβύλης

each of the first three words βαρείας τε τάσεις ἔχει καὶ ὀξείας. Furthermore, it is most unlikely that in such phrases as καὶ σφοδροὶ καὶ πολλοὶ καὶ συντεταγμένως καὶ πιθανῶς λέγοντες (Plato *Apol.* 23 E) and ἡ φυλὴ Ἀντιοχὶς πρυτανεύουσα (*ibid.*, 32 B) the voice was held to a monotone until the first acute. Finally, the Delphic hymns apply to the finals of oxytones within the phrase the rule that an accented syllable is not to be sung on a lower note than the unaccented syllables of the same word; but, on the other hand, such a syllable, while

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keenest insight, who calls a certain accent the monotone (it seems to be none other than the middle accent, although under a different name). Some have thought that there are more than four accents, as Glaucus of Samos, by whom six accents were proposed under these names, low, middle, high, broken, bent, reflected. But he also agrees with us; for it is easy for anyone to understand from the names themselves that the first three are simple and no other than the grave, middle, and acute, while the last three are composite and, so to speak, three species of a single genus, which is the circumflex."

frequently lower, is never higher pitched than the accented syllable of the following word. The final syllables of oxytones within a phrase are in fact treated as intermediate between grave and acute.[1]

We must assume, on the basis of the later tradition, that the dissyllabic prepositions and some similar words also were given a middle accent in Ionic, Attic, and Hellenistic Greek, except that they retained their original acute on the penult in case they were not closely connected with the following word (anastrophe).

The later grammarians, notably Apollonius Dyscolus and his son, Herodian, commonly apply the term *βαρεῖα προσῳδία* to the modified accent of oxytones within the phrase.

Herodian i, p. 10. 3–13 Lentz: Πᾶσα *ὀξεῖα ἐπὶ τέλους λέξεως οὖσα, εἰ μὴ ἐπιφέροιτο μετ' αὐτὴν στιγμή, πάντως ἐν τῇ συμφράσει κοιμίζεται εἰς βαρεῖαν, οἷον,*

Ζεὺς δ' ἐπεὶ οὖν Τρῶάς *τε καὶ Ἕκτορα,*

τό τε 'Ζεὺς' καὶ 'ἐπεὶ' βαρύνεται, ὅτι στιγμὴ μετὰ ταῦτα οὐ τίθεται. ἰστέον δὲ ὅτι καθ' ἑκάστην λέξιν ἐν μιᾷ συλλαβῇ τίθεμεν ἢ ὀξεῖαν ἢ περισπωμένην, ἐν δὲ ταῖς λοιπαῖς συλλαβαῖς βαρεῖαν· οἷον ἐν τῷ Μὲνέλὰὸς *δευτέρα συλλαβὴ ὀξύνεται, αἱ δὲ λοιπαὶ βαρύνονται, καὶ ἐν τῷ ἀλλοῖὸς ἡ μέση περισπᾶται, ἡ δὲ πρώτη καὶ τρίτη βαρύνονται· διὸ καὶ βαρύτονα καλεῖται τὰ παροξύτονα καὶ προπαροξύτονα καὶ προπερισπώμενα, διὸ ἡ τελευταία τούτων βαρύνεται· ἀλλ' ὡς ὁμολογουμένας τὰς τοιαύτας βαρείας ἐῶμεν, διὰ τὸ μὴ καταστίζειν τὰ βιβλία.*[2]

[1] Ehrlich, *op. cit.*, p. 252.

[2] "Every acute at the end of a word, unless punctuation follows it, falls in connected discourse entirely to the grave; as in the line:

Ζεὺς δ' ἐπεὶ οὖν Τρῶας *τε καὶ Ἕκτορα,*

Ζεὺς and *ἐπεὶ* are barytone because there is no mark of punctuation after them. It is to be understood that in each word we place either acute

We might suppose that about the beginning of the Christian Era the middle accent fell to the level of the grave and was thereafter indistinguishable from it; but beginning with the fourth century A.D. we again find it treated in a way which distinguishes it from the grave, and so it is probable that it maintained its identity in the meantime. Byzantine accentual verse and rhythmic prose regularly treat the syllables under discussion as accented, and in modern Greek they are accented in precisely the same way as syllables which in antiquity bore the acute or the circumflex. It is likely, therefore, that the identification of middle accent and grave was a matter of terminology which reflected the facts only to the extent that both were lower in pitch than the acute and the circumflex. Perhaps the symbol of the grave accent was applied to syllables with the middle tone when it ceased to be needed in its original value, since the lack of one of the other symbols on a syllable could be understood to denote the grave; the retention of the old name for the symbol in its new use would inevitably confuse the terminology of the grammarians.

The earliest trace of a stress accent in Greek consists of clip forms from the dialect of the lowest classes at Athens in the fourth century B.C. The comic poet Amphis, 30 Koch, ridicules a fish-dealer for saying *'ττάρων 'βολῶν* and *'κτὼ 'βολῶν*. The verb *σκορακὶζεσθαι*

or circumflex on one syllable and grave on the remaining syllables: for example, in Μὲνὲλὰὸς the second syllable is acute and the rest are grave, and in ἀλλοῖὸς the middle syllable is circumflex and the first and third grave (wherefore paroxytones, proparoxytones, and properispomena are also called barytone); but we allow such grave accents to be taken for granted, so as not to mark up the paper."

(first in Ps.-Demosthenes xi. 11) presupposes an imprecation *'ς κόρακας.*

Since, however, all three of these lost syllables were initials, their loss may have been due to causes quite unrelated to the accent. Possibly we should write *'κτώβολῶν*, and regard the first *ω* as due to crasis, while an incorrect division of this gave the form *'βολῶν* of *'ττάρων 'βολῶν*. The loss of an initial syllable or group of syllables in a common phrase is to be found in many languages, as in English "fact is" = "the fact is," "'fraid not" = "I'm afraid not," etc. That the phenomenon is not due to a stress accent is proved by its occurrence in French; for example, *turellement* = *naturellement*, *tends tu?* = *entends tu?* *rappelle plus* = *je ne me rappelle plus*. Jespersen, *Negation in English and Other Languages*, p. 6, from whom the above examples have been taken, calls the process prosiopesis.

Vulgar Latin tended from as early as the third century B.C. to retain the position of the Greek accent in loan-words (except oxytones), even in case this involved an alteration of quantity;[1] for example, *áncŏra* from *ἄγκῡρα*, *Phílĭppus* from *Φίλιππος*, *pŏĕsis* from *ποίησις*. If the Greek accent which the illiterate Romans heard had differed from their own in being virtually devoid of stress, it is not likely that it would have impressed them more profoundly than the quantitative distinctions which were common to both languages; for all men tend to hear those phonetic distinctions in a foreign language to which they are accustomed in their own. We may therefore conclude

[1] Meyer-Lübke, *Gramm. lang. rom.*, I, 35; Lindsay, pp. 155 f.; cf. Vendryes, pp. 159 ff.

that vulgar Italian Greek had a considerable element of stress as early as the third century B.C.[1]

There is no certain trace of stress accent in standard Greek until the third or fourth century A.D., when Babrius composed choliambics in which he always put an accented syllable in the next to the last place. To the fourth century belongs Gregory of Nazianz, who composed hymns in accentual rhythm. Modern Greek has a stress accent which, in general, rests upon the syllables that in antiquity had high pitch.

[1] For other supposed indications of stress in Greek earlier than the Christian Era, and reasons for thinking them invalid, see Ehrlich, *op. cit.*, and Sturtevant, *op. cit.*

CHAPTER V

THE LATIN ACCENT[1]

Latin, unlike Greek (p. 197), shows a very large amount of weakening and syncope of short vowels. It is no part of our task to describe these phenomena in detail;[2] but some of the most important features must be mentioned.

Precise limitations of syncope in Latin cannot be fixed, and it is therefore probable that rapidity of utterance and external considerations such as the character of the audience and the mood of the speaker helped to determine whether the full or the syncopated form should be used. We are told, in fact, that *caldus* belonged to everyday speech and *calidus* to formal Latin.

[1] Schoell, "De accentu Latino Latinorum veterum grammaticorum testimonia," *Acta Soc. Phil. Lips.*, VI, 1 ff.; Seelmann, *Die Aussprache des Latein* (especially pp. 15–64), Heilbronn, 1885; Lindsay, *The Latin Language* (especially pp. 148–217), Oxford, 1894; Vendryes, *Recherches sur l'histoire et les effets de l'intensité initiale en latin*, Paris, 1902; Sommer, *Handbuch der lateinischen Laut- und Formenlehre*, second and third edition (especially pp. 84–141), Heidelberg, 1914; Johnson, *TAPA*, XXXV, 65 ff.; Abbott, *CP*, II, 444 ff.; Foster, *CP*, III, 201 f.; Skutsch, *Glotta*, IV, 187 ff.; Bergfeld, *Glotta*, VII, 1 ff.; Sturtevant, *TAPA*, XLII, 45 ff., *CP*, XIV, 234 ff., 373 ff.

[2] An excellent account of them may be found in Niedermann, *Outlines of Latin Phonetics*, edited by Strong and Stewart, pp. 15–24, 33, 34. This is a translation of Niedermann, *Précis de phonétique historique du Latin*. The latest available form of the work, embodying some important changes, is *Historische Lautlehre des Lateinischen*, second edition, in which pp. 15–26, 38, 39 treat of weakening and syncope.

Quintilian i. 6. 19: Sed Augustus quoque in epistulis ad C. Caesarem scriptis emendat quod is *calidum* dicere quam *caldum* malit, non quia id non sit Latinum, sed quia sit otiosum.[1]

Only one limitation of the phenomenon can be clearly established; it did not occur in initial syllables of any words except enclitics. Final vowels were lost in *dic*, *fer*, *animal;* vowels of final syllables in *ager* from **agros*, *nostras* from **nostratis*, *mens* from **mentis;* penultimate vowels in *infra* beside *inferus*, *valde* beside *valide*, *raucus* beside *ravis;* antepenultimate vowels in *undecim* from **unodecem*, *sinciput* from **semicaput*, *repperi* from **repeperi*, *iunior* from **iuvenior;* and vowels of initial syllables of enclitics in *nec*, *ac*, *denuo*[2] from *de novo*. We are therefore compelled to assume that at the time when these changes occurred Latin had a stress accent on the first syllable of the words and phrases concerned.

Vowel-weakening in Latin may be described as a tendency of short vowels in other than initial syllables to be pronounced with a closer articulation and to lose a part of their resonance. Thus *ă* before two consonants became *ĕ* (*praefectus*, *artifex*, *biennis*), *ă* before a single consonant except *r* became *ĭ* (*praeficio*, *artificis*, *cecidi*); *ĕ* before a single consonant except *r* became *ĭ* (*redidi*, *colligo*); *ŏ* before two consonants and in final syllables became *ŭ* (*fagus*:φηγόs, *euntis*:ἰόντος, *ōnustus* from **onos-tos*). In some cases the decrease in openness and resonance was accompanied or followed by a change in the position of closure, as when medial *ŏ* before a single

[1] But Augustus also in letters written to Gaius Caesar (i.e., his grandson) corrects him for preferring to say *calidum* rather than *caldum*, not because the former is not Latin, but because it is affected.

[2] Possibly this is vowel-weakening, but more probably syncope with *samprasāraṇa*, as in *ager*.

consonant became ĭ (*armiger*, *ilico*:*locus*), or when a short vowel before a labial consonant became the abnormal vowel between ĭ and ŭ (*recupero*:*recipero*, *maxumus*:*maximus*, *possumus*:*legimus*, *documentum*:*specimen*).[1] A decrease of the resonance and openness of the vowels of unaccented syllables is characteristic of languages with a strong stress accent.[2]

The stress accent of the initial syllable which we are thus compelled to assume for some early period in the history of the Latin language must have existed subsequently to the earliest contact of the Romans with the Greeks in the sixth or fifth century B.C.; for the earliest loan-words were modified in the same way as the native speech-material; for example, *balineum* from βαλανεῖον, *Tarentum* from Τάραντα, *Hecuba* from Ἑκάβα. One or two of the earliest Latin inscriptions seem to be quite free from vowel-weakening and syncope, notably the Praenestine fibula, *CIL* xiv. 4123: *Manios med fefaked Numasioi*. The old inscription from the forum contains *sakros* (nominative) and *iovestod* for *iusto*.

The initial accent probably persisted almost to the time of Plautus. The weakening of ŏ to ŭ in final syllables seems to have occurred late in the third century B.C.; for most of the inscriptions of that century show the earlier forms; for example, the earliest of the epitaphs of the Scipios, *CIL* i. 31, 32. It is probable that the change of medial ŏ before two consonants (*onustus*, *promunturium*, *leguntur*) was a part of the same

[1] It is doubtful whether ĕ from ă before *r* should be ascribed to vowel-weakening; even ĭ yields ĕ in that position, although ĕ is the more resonant sound.

[2] Sturtevant, *Linguistic Change*, pp. 58 f., 78.

process; for ŏ in *consentiont*, *virom*, etc., was followed by a consonant in its own syllable, and that seems to have been an essential factor in the change in medial syllables. But the change of ŏ to ŭ before two medial consonants must be ascribed to the initial accent, since it frequently occurred in penultimate syllables.

In Plautus, however, we find that the verse-ictus harmonizes, not with the old initial accent, but with the accent on penult or antepenult (pp. 211 ff.). The change from the one system to the other must therefore be dated shortly before Plautus' time. In fact, it seems not yet to have been completed when he wrote; for words of four short syllables (*facilius*, *mulierem*) usually have an ictus on the initial syllable in Plautus and, somewhat less regularly, in Terence.

There are several reasons for believing that the historical Latin accent, like its predecessor, involved a good deal of stress. The shift to the new system was probably due to a secondary accentuation of long words on the penult if this was long or on the antepenult if the penult was short. Before the end of the third century B.C. *témpestàtem*, *témpestàtibus*, etc., became *tèmpestátem*, *tèmpestátibus*, and the like; and then such words as *tríennium* and *ónustus* were adapted to the new model.[1] If the main accent was really transferred in this way from the earlier position to the later, the primary and secondary accents, both under the old system and under the new, must have been alike. Hence, at its origin, the later accent probably involved stress.

When, in the latter part of the third century B.C., ŏ followed by a consonant in its own syllable otherwise

[1] Lindsay, pp. 158 f.

became *ŭ* (pp. 34 f.), the change was prevented by a preceding *u* or *v* (*suos*, *servos*, *servont*, *fruontur*, *servontur*). It was probably not until well into the second century that such words finally changed *ŏ* to *ŭ* (p. 36). If we are right in dating the change so late, the historical accent must have had enough stress to weaken the vowels of final syllables. Of course the change of the accented penultimate vowel of *fruuntur*, etc., was due to the analogy of *servunt*, etc., on the one hand, and of *reguntur*, etc., on the other.

Very few cases of syncope are certainly due to the historical accent. Plautus uses *balineae* instead of *balneae*, which was later the usual form, and *pueritiae* instead of Horace's *puertiae* (*Carm*. i. 36. 8); but it is likely that the syncopated as well as the fuller forms of such words were in use in the time of Plautus. In fact, Plautus himself uses syncopated *balneator* (*Truc*. 325). Probably *olfacere* and *calfacere* were syncopated by the historical accent. If these forms are to be connected with *per-frīgē-facit*, Plautus *Pseud*. 1215, *pūtē-facit*, *Most*. 112, etc., the long vowels of *olē-* and *calē-* must have been shortened by the iambic law.[1] Since iambic shortening is a function of the historical accent, we must ascribe the syncope also to the later accent on the syllable following *ŏlē-* or *călē-*.

Iambic shortening is itself the most striking effect which the historic accent exerted upon the vocalism of

[1] Bergfeld, *Glotta*, VII, 14 f., would connect *olfacere* with early Latin *olĕre* rather than with *olēre;* but there seems to be no way of connecting these compounds with verbs except on the assumption that they contain the same element which combined with *-bām* (from *-bhu̯ām*) to form the imperfect, and *rego*, no less than *moneo*, forms its imperfect in *-ē-bam*.

the language. The law may be stated briefly thus: an iambic sequence of syllables tended to become pyrrhic if the accent rested upon the short syllable or upon the syllable following the iambus. Hence arose such forms as *egŏ* (sometimes *egō* in early Latin; cf. ἐγώ), *mihĭ* beside *mihī*, *modŏ* from ablative *modō*, *avĕ*, *cavĕ*, *valĕ* (but *monē*, etc.), *benĕ*, *malĕ* (but *rectē*, etc.).[1] That the historical accent was operative in this matter is clear; we see it actually at work in Plautus and Terence. Particularly cogent proof is furnished by the shortening of initial syllables; for example, *tĭbi‿ĕvénit*, *Merc.* 774, *bĕne‿ĕvēnísse*, *Poen.* 1078, *quĭd ăbstulísti*, *Aul.* 645, *tĭbi‿ŏbtémperem*, *Most.* 896, *ăge‿ăbdúce*, *Stich.* 418.

Conclusive proof that the historic accent involved stress is presented by the fact that the Roman poets tried to secure definite correspondence between accent and ictus. The dramatists, for example, endeavored to make accent and ictus coincide, while the writers of hexameter tried to secure harmony of accent and ictus in the last two feet of each line and to avoid it in the first four feet. If accent and ictus were so similar that their coincidence or clash required the attention of

[1] For a convenient account of the iambic law, see Lindsay, *The Captivi of Plautus*, pp. 30–40. Sommer, p. 128, *Kritische Erläuterungen*, p. 40, holds that the shortening cannot be "die primäre lautphysiologische *ratio* des Processes," because a syllable long by position could never be short in pronunciation. A sufficient answer is that such words as *velint*, *adest*, *senex* are frequently scanned as pyrrhics, and nothing is more certain than that Plautus and Terence were here following actual pronunciation. Such syllables are often shortened by the stress accent of modern English. In Tennyson's:

Kíssing his vóws upón it líke a kníght,



the syllable *his* is short.

literary artists, they must both have involved stress. For there is no other feature that can have been common to both; while the accent may conceivably have been chiefly a matter of pitch, the ictus cannot have involved pitch; although ictus has been supposed to be mere quantitative predominance, accent and quantity are clearly distinct phenomena.

It may be supposed by some that the precise degree of harmony between accent and ictus which is observed in Latin verse resulted from the laws of the Latin accent, since both accent and ictus tend to rest upon long syllables or, less often, upon the first of two short syllables. It is possible to measure the tendency toward harmony which results from the position of the accent by observing the incidence of the ictus upon all possible combinations of syllables in a number of verses. For example, the syllable-group – ⏓ occurs in about 530 lines of Plautus and Terence 1894 times with the ictus on the ultima, and 2468 times with the ictus on the penult. Therefore the structure of early dramatic verse tends to produce harmony of accent and ictus in words of this type 57 per cent of the time. In actual practice, however, words of the rhythmic type – ⏓ have the ictus on the penult in 85 per cent of all occurrences; the poets managed to secure harmony of accent and ictus very much more frequently than it would naturally have occurred. Words of other rhythmic types show a similar effort on the part of the poets. For dactylic verse the proof is equally cogent, but somewhat more complicated.[1]

The Romans of classical times, on the other hand, speak of their accent as one of pitch. The Latin

[1] Sturtevant, *CP*, XIV, 234 ff. and 373 ff.

terminology of accent is translated from the Greek; *accentus* = προσῳδία, *tenor* = τόνος, *acutus* = ὀξύς, *gravis* = βαρύς, etc. The same terms were applied to musical phenomena precisely as were their Greek originals. Childish as its argument is in part, we may cite the following passage from Varro as evidence for the identity of musical and accentual terminology:

Varro ap. Sergium (?) iv, pp. 531.23—532 = pp. 216.15—217.4 GS: Acuta exilior et brevior et omni modo minor est quam gravis, ut est facile ex musica cognoscere cuius imago prosodia. Nam et in cithara omnique psalterio quo quaeque chorda acutior eo exilior et tibia tanto est voce acutiore quanto cavo angustiore, adeo ut corniculo aut bamborio addito gravior reddatur, quod crassior exit in aera. Brevitatem quoque acutae vocis in isdem organis animadvertere licebit, si quidem pulsu chordarum citius acuta transvolat, gravis autem diutius auribus inmoratur. Etiam ipsae chordae quae crassius sonant longiores videntur, quia laxius tenduntur; item in fistula duo calami brevissimi qui acutissimae vocis. Tibiae quoque acutiores quae breviores et his foramina quam sunt ori proxima et brevioris aeris motum persentiscunt tam vocem reddunt acutam. Sic in loquentium legentiumque voce ubi sunt prosodiae velut quaedam stamina, acuta tenuior est quam gravis et brevis adeo ut non longius quam per unam syllabam, quin immo per unum tempus protrahatur; cum gravis quo uberior et tardior est diutius in verbo moretur et iunctim quamvis in multis syllabis residat. Quocirca graves numero sunt plures, pauciores acutae, flexae rarissimae.[1]

[1] "The acute is thinner and shorter and in every way less than the grave, as it is easy to learn from music, of which accent is a copy. For both in the cithara and in every stringed instrument the higher a chord is in pitch the more slender it is, and a tibia has a high-pitched sound in proportion as its tube is narrow, so that in fact when a horn or bell (i.e., a flaring mouth) is appended the sound becomes lower because it is thicker in diameter when it strikes the air. One may notice also the brevity of the high tone in the same instruments, since a high tone passes away more quickly after the string has been struck, while a low tone

Of the numerous passages in which the Romans identify accent with pitch, we may cite the following:[1]

Gellius xiii. 26. 1–3: P. Nigidi verba sunt ex *Commentariorum Grammaticorum* vicesimo quarto, hominis in disciplinis doctrinarum omnium praecellentis: "Deinde," inquit, "voculatio qui poterit servari si non sciemus in nominibus, ut *Valeri*, utrum interrogandi sint an vocandi? Nam interrogandi secunda syllaba superiore tonost quam prima, deinde novissima deicitur; at in casu vocandi summo tonost prima, deinde gradatim descendunt." Sic quidem Nigidius dici praecipit. Sed si quis nunc Valerium appellans in casu vocandi secundum id praeceptum Nigidi acuerit primam, non aberit quin rideatur. *Summum* autem *tonum* *προσῳδίαν* acutam dicit, et, quem *accentum* nos dicimus, *voculationem* appellat, et *casum interrogandi* eum dicit quem nos *genetivum* dicimus.[2]

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lingers longer in the ears. Besides, the chords themselves which give the coarser sound appear longer because they are stretched more loosely; similarly in the Pan's pipe the two reeds are shortest whose sound is highest. Tibiae also are higher-pitched the shorter they are, and their finger-holes give a higher tone the nearer the mouth they are and the shorter the current of breath which they feel. So, since the accents may be called strings in the voice of those who are speaking or reading, the acute is thinner than the grave and so short that it is not held longer than during one syllable, or rather, one time (i.e., one mora), whereas the grave, in proportion to its greater mass and slower movement, tarries longer in a word and rests upon any number of successive syllables. Wherefore grave syllables are more numerous, acute syllables fewer, and circumflex syllables rarest of all."

[1] For the others, see Schoell, *op. cit.*

[2] "Here is a quotation from the twenty-fourth book of the *Commentarii Grammatici* of Nigidius Figulus, who excels in the learning of all sciences. He says: 'How can modulation be preserved if we do not know in regard to such nouns as *Valeri* whether they are in the case of interrogation or in the case of calling? For the second syllable of the case of interrogation is of higher tone than the first, and the last falls; but in the case of calling the first syllable is of highest tone, and then they gradually fall.' So Nigidius directs one to speak. But if

Cicero *Or.* 56–58: Volet igitur ille qui eloquentiae principatum petet et contenta voce atrociter dicere et summissa leniter et inclinata videri gravis et inflexa miserabilis; mira est enim quaedam natura vocis, cuius quidem e tribus omnino sonis, inflexo, acuto, gravi, tanta sit et tam suavis varietas perfecta in cantibus. Est autem etiam in dicendo quidam cantus obscurior, non hic e Phrygia et Caria rhetorum epilogus paene canticum, sed ille quem significat Demosthenes et Aeschines, cum alter alteri obicit vocis flexiones. . . . . In quo illud etiam notandum mihi videtur ad studium persequendae suavitatis in vocibus; ipsa enim natura, quasi modularetur hominum orationem, in omni verbo posuit acutam vocem nec una plus nec a postrema syllaba citra tertiam; quo magis naturam ducem ad aurium voluptatem sequatur industria.[1]

Varro ap. Sergium (?) iv, p. 525.24 ff. K.=p. 210.10–16 GS: Scire oportet vocem sicut omne corpus tris habere distantias, altitudinem, crassitudinem, longitudinem. . . . . Ab altitudine

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anyone nowadays in calling Valerius should put the acute on the first syllable in the vocative case according to the precept of Nigidius, he would not fail to be laughed at. Furthermore, he calls acute accent highest tone, and what we call accent he calls modulation, and what we call the genitive case he calls the case of interrogation."

[1] "Therefore a candidate for honors in oratory will desire to speak threatening words in a tense voice, and gentle words in an even tone, to be impressive with a low tone, and to arouse pity with a wavering tone; for wondrous is the power of the voice, since from its three sounds, circumflex, acute, and grave, such charming variety has been perfected in song. And in speech too there is a less obvious melody, not this final paragraph of the teachers of oratory from Phrygia and Caria, which is almost a song, but that to which Demosthenes and Aeschines refer when they reproach each other with modulation of tone. . . . . On this point, in our desire to attain an agreeable voice, I think we should observe that Nature herself, as if she were setting men's speech to music, has put an acute accent in every word, and not more than one, and not farther from the last syllable than the antepenult; wherefore our effort should all the more follow Nature as its guide toward what is pleasant to the ears."

discernit accentus, cum pars verbi aut in grave deprimitur aut sublimatur in acutum.[1]

Since many Romans, including Varro and Cicero, knew Greek well, they could not have identified their Latin accent with their Greek accent if the one had been essentially a matter of stress and the other of pitch. Still less would Cicero have appealed to the melody of accent when inculcating a variation of pitch in oratory, if Latin accent had involved no melody. We must conclude that Latin accent was a pitch accent as well as a stress accent. We have no means of deciding which of the two elements was the stronger; quite possibly they were equally prominent. Probably the variation in pitch was somewhat less than in Greek. Certainly the stress was weaker than in modern English; for otherwise it would have obscured the quantitative distinctions of the unaccented vowels.

The Romans have left us elaborate rules for a Latin circumflex accent.

Donatus iv, p. 371.8 ff. K.: Ergo monosyllaba quae correptam vocalem habebunt acuto accentu pronuntiabimus, ut *fax*, *pix*, *nux;* quae productam vocalem habebunt circumflexo accentu pronuntiabimus, ut *res*, *dos*, *spes*. In disyllabis quae priorem productam habuerint et posteriorem correptam, priorem syllabam circumflectemus, ut *meta*, *Creta;* ubi posterior syllaba producta fuerit, acuemus priorem, sive illa correpta fuerit sive producta, ut *nepos*, *leges;* ubi ambae breves fuerint, acuemus priorem, ut *bonus*, *malus*. In trisyllabis et tetrasyllabis et deinceps si paenultima correpta fuerit acuemus antepaenultimam, ut *Tullius*, *Hostilius;* si paenultima positione longa fuerit, ipsa acuetur et

[1] "One should understand that the voice, like every body, has three dimensions, height, thickness, and length. . . . . The distinction in height is caused by accent, when a part of a word is lowered to the grave or elevated to the acute."

antepaenultima gravi accentu pronuntiabitur, ut *Catullus*, *Metellus*, ita tamen si positione longa non ex muta et liquida fuerit (nam mutabit accentum, ut *latebrae*, *tenebrae*); si ultima brevis fuerit paenultima vero natura longa, paenultima circumflectetur, ut *Cethegus*, *perosus;* si ultima quoque natura longa fuerit, paenultima acuetur, ut *Athenae*, *Mycenae*.[1]

Since these rules are as similar to the Greek rules as they could be without violating the Latin rules for the position of the accent, and since the Lithuanian circumflex, which, next to Greek, is our chief evidence for the Indo-European circumflex, is not subject to similar limitations (*gývas*, *véidas*, *sẽserį*, *żõdżui*), it seems likely that the Romans were here guilty of adopting Greek learning which had no meaning as applied to their own language. Quite possibly Varro, Cicero, and Quintilian meant by the Latin circumflex merely the accent resting on a long vowel; for the detailed rules appear only in the later grammarians.[2]

[1] "Therefore monosyllables which have a short vowel we shall pronounce with acute accent, as *fax*, *pix*, *nux;* those which have a long vowel we shall pronounce with circumflex accent, as *res*, *dos*, *spes*. In dissyllables with former vowel long and latter short we shall circumflex the former syllable, as *meta*, *Creta;* in case the latter syllable is long, we shall make the former acute, whether it is short or long, as *nepos*, *leges;* in case both are short, we shall make the former acute, as *bonus*, *malus*. In trisyllables, tetrasyllables, etc. if the penult is short, we shall make the antepenult acute, as *Tullius*, *Hostilius;* if the penult is long by position, it will have the acute, and the antepenult will be pronounced with the grave accent, as *Catullus*, *Metellus*, but only if its length by position shall not result from mute and liquid (for that will change the accent, as *latebrae*, *tenebrae*); if the ultima is short and the penult long by nature, the latter will be circumflexed, as *Cethegus*, *perosus;* if the ultima also is long by nature, the penult will have the acute, as *Athenae*, *Mycenae*."

[2] Vendryes, pp. 31 f.; Sturtevant, *TAPA*, XLII, 50–52.

Certain grammarians of the fourth and later centuries speak of the accent in terms which clearly imply stress.

Servius iv, p. 426. 16 ff. K.: Accentus in ea syllaba est quae plus sonat. Quam rem deprehendimus si fingamus nos aliquem longe positum clamare. Invenimus enim naturali ratione illam syllabam plus sonare quae retinet accentum, atque usque eodem nisum vocis adscendere.[1]

Similar expressions are used by Pompeius v, p. 126. 16 ff. By this time, apparently, stress had become the predominant element of Latin accent. The extensive loss and weakening of vowels in the Romance languages also indicates an increase of stress in late Latin.

[1] "The accent is on that syllable which has more sound. This we discover if we imagine that we are calling to someone at a distance. For we find that the syllable which has the accent naturally has more sound, and that the energy of the voice increases up to the same point."

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